THE ELEMENTS OF ARCHITECTVRE.

Collected by

HENRY WOTTON Knight,

from the beſt Authors

and Exam-

ples.

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THE PREFACE.

I Shall not neede (like the most part of Writers) to celebrate the Subiect which I deliuer. In that point I am at ease. For Architecture, can want no commendation, where there are Noble Men, or Noble mindes; I will therefore spend this Preface, rather about those, from whom I haue gathered my knowledge, for I am but a gatherer and disposer of other mens stuffe, at my best value.

Our principall Maſter *is* Vitruuius *and ſo I ſhall often call him; who had this* felicitie, *that he wrote when the* Roman Empire *was neere the pitch; Or at leaſt, when* Auguſtus (*who fauoured his endeauours*) *had ſome meaning* (*if he were not miſtaken*) *to bound the* Monarchie: *This I ſay was his good happe; For in growing and enlarging times,* Artes *are commonly drowned in* Action: *But on the other ſide, it was in truth an* vnhappineſſe, *to expreſſe himſelfe ſo ill, eſpecially writing* (*as he did*) *in a ſeaſon of the ableſt* Pennes; *And* his obſcuritie *had this ſtrange fortune; That though he*

Tacit. lib. 1. Annal.

were

were beſt practiſed, and beſt followed by his owne Countrymen; yet after the reuiuing and repoliſhing of good Literature, (which the combuſtions and tumults of the middle Age had vnciuilized) he was beſt, or at leaſt, firſt vnderſtood by ſtrangers: For of the Italians that tooke him in hand, Thoſe that were Gramarians ſeeme to haue wanted Mathematicall knowledge; and the Mathematicians perhaps wanted Gramer: till both were ſufficiently conioyned, in Leon-Batiſta Alberti the Florentine, whom I repute the firſt learned Architect, beyond the Alpes; But hee ſtudied more indeede to

make

make himselfe an Author, *then to illustrate his* Master. *Therefore among his* Commenters; *I must* (*for my priuate conceite*) *yeild the chiefe praise vnto the* French, *in* Philander; *and to the high* Germans, *in* Gualterus Riuius: *who, besides his notes, hath likewise published the most elaborate* translation, *that I thinke is extant in any* vulgar *speech of the world: though not without bewayling, now and then, some defect of* Artificiall *tearmes in his owne; as I must likewise. For if the* Saxon, (*our* mother *tongue*) *did complaine; as iustly* (*I doubt*) *in this point may the* Daughter: Languages, *for the most*

most part in tearmes of Art *and* Erudition, *retayning their originall pouertie, and rather growing rich and abundant, in complementall phraſes and ſuch froth. Touching diuers* moderne *men that haue written out of meere praſtiſe, I ſhall giue them their due, vpon occaſion.*

And now, after this ſhort Cenſure *of others, I would faine ſatisfie an* Obiection *or two, which ſeeme to lie ſomewhat heauily vpon my ſelfe; It will be ſaid that I handle an* Art, *no way ſuteable either to my* employments, *or to my* fortune. *And ſo I ſhall ſtand charged, both with* Intruſion, *and with* Impertinency.

To the First *I answere, that though by the euer acknowledged goodnesse of my most* deare *and* gracious SOVERAIGNE; *and by his long indulgent toleration of my defects. I haue borne abroad some part of his* ciuill *seruice; yet when I came home, and was againe resolued into mine owne simplicitie, I found it fitter for my* Pen (*at least in this first publique aduenture*) *to deale with these plaine* compilements, *and tractable* Materials; *then with the* Laberynthes *and* Mysteries *of* Courts *and* States; *And lesse presumption for mee, who haue long contemplated a famous* Republique, *to write now of* Architecture;

tecture; *then it was anciently for* *Hippodamus *the* Milesian, *to write of* Republiques, *who was himselfe but an* Architect.

To the Second, *I must shrinke vp my shoulders, as I haue learn'd abroad, and confesse indeed, that my fortune is very vnable to* exemplifie, *and* actuate *my* Speculations *in this* Art, *which yet in trueth, made mee the rather euen from my very disabilitie, take encouragement to hope; that my present* Labour, *would find the more fauour with others, since it was vndertaken for no mans* sake, *lesse then mine* owne. *And with that cõfidence, I fel into these thoughts; Of which, there were two wayes to*

*Aristot. 2. lib. Politi. cap. 6.

be deliuered; The one Hiſtorical, *by deſcription of the principall* workes, *performed already in good part, by* Giorgio Vaſſari *in the liues of* Architects: *The other* Logicall, *by caſting the* rules *and cautions of this Art, into ſome comportable* Methode: *whereof I haue made choice; not onely as the ſhorteſt and moſt* Elementall; *but indeed as the* foundeſt. *For though in practicall* knowledges, *euery complete* example, *may beare the credite of a* rule; *yet peraduẽture* rules *ſhould precead, that we may by them, be made fit to iudge of* examples: *Therefore to the* purpoſe; *for I will preface no longer.*

OF

OF THE ELEMENTS OF ARCHITECTVRE.

The I. part.

IN *Architecture* as in all other *Operatiue* Arts, the *end* must direct the *Operation.*

The *end* is to build well.

Well building hath three Conditions.
Commoditie, *Firmenes*, and *Delight.*

A common diuision among the Deliuerers of this *Art*, though I know not

how, ſome what miſplaced by *Vitruuius* himſelfe *lib.* 1. *cap.* 3. whom I ſhal-be willinger to follow, as a Maſter of *Proportion*, then of *Methode*.

Now, For the attayning of theſe *Intentions*, wee may conſider the whole *Subiect*, vnder two generall Heads.

The *Seate*, and the *Worke*.

Therefore firſt touching *Scituation*.

The *Precepts* thereunto belonging, doe either concerne the *Totall Poſture*, (as I may tearm it) or the *Placing* of the *Parts*: wherof the firſt ſort, howſoeuer vſually ſet downe by *Architects* as a piece of their *Profeſsion*: yet are in truth borrowed, from other *Learnings*: there being betweene *Arts* and *Sciences*, as well as betweene *Men*, a kinde of good fellowſhip, and communication of their *Principles*.

For you ſhall finde ſome of them, to be meerely *Phyſicall*, touching the qua-

lity

litie and temper of the *Aire*: which being a perpetuall ambient, and ingredient, and the defects thereof, incorrigible in ſingle *Habitations* (which I moſt intend) doth in thoſe reſpects, require the more exquiſite caution; That it be not too *groſſe*, nor too *penetratiue*; Not ſubiect to any foggy noyſomneſſe, from *Fenns* or *Marſhes* neere adioyning; nor too *Mineral* exhalations, from the Soile it ſelfe. Not vndigeſted, for want of *Sunne*; Not vnexerciſed, for want of *Winde*: which were to liue (as it were) in a *Lake*, or ſtanding *Poole* of *Aire*, as *Alberti* the *Florentin Architect*, doth ingeniouſly compare it.

Some doe rather ſeeme a little *Aſtrological*, as when they warne vs from Places of malign *Influence*: where *Earthquakes*, *Contagions*, *Prodigious Births*, or the like, are frequent without any euident cauſe: whereof the Conſideration is peraduenture not altogether

vaine: Some are plainely *Oeconomical*; As that the *Seate* be well watered, and well fewelled, That it bee not of too ſteepie and incommodious *Acceſſe* to the trouble both of friends and *familie*. That it lie not too farre, from ſome nauigable *Riuer* or *Arme* of the *Sea*, for more eaſe of prouiſion and ſuch other *Domeſtique* notes.

Some againe may bee ſaid to bee *Optical*? Such I meane as concerne the *Properties* of a well choſen *Proſpect*: which I will call the *Royaltie* of *Sight*. For as there is a *Lordſhip* (as it were) of the *Feete*, wherein the Maſter doth much ioy when he walketh about the *Line* of his owne *Poſſeſsions*: So there is a *Lordſhip* likewiſe of the *Eye* which being a raunging, and Imperious, and (I might ſay) an *Vſurping Sence*, can indure no narrow *circumſcription*; but muſt be fedde, both with extent and varietie. Yet on the other ſide, I finde vaſte and indefinite viewes which drowne

drowne all apprehenſion of the vt-termoſt *Obiects*, condemned, by good Authors, as if thereby ſome part of the pleaſure (whereof we ſpeake) did periſh. Laſtly, I remember a priuate *Caution*, which I know not well how to ſort, vnleſſe I ſhould call it *Political*. By no meanes, to build too neere a great *Neighbour*; which were in truth to bee as vnfortunately ſeated on the earth, as *Mercurie* is in the Heauens, for the moſt part, euer in *combuſtion*, or *obſcuritie*, vnder brighter beames then his owne.

From theſe ſeuerall *Knowledges* as I haue ſaid, and perhaps from ſome other doe *Architects* deriue their Doctrine about election of *Seats*: wherin I haue not beene ſo ſeuere, as a great Scholer of our time, who preciſely reſtrayneth a perfect *Scituation*, at leaſt for the maine point of health, *Ad locum contra quem Sol radios ſuos fundit cum ſub Ariete oritur*, That is, in a word hee

* *Ioannes Heurnius Inſtit: Medicin: lib. 7. cap. 2.*

would haue the firſt *ſalutation* of the *Spring*. But ſuch *Notes* as theſe, whereſoeuer we finde them in graue or ſlight Authors, are to my conceite rather *wiſhes* then *Precepts*; and in that qualitie, I will paſſe them ouer. Yet I muſt withall ſay that in the *ſeating* of our ſelues (which as a kinde of *Marriage* to a *Place*) *Builders* ſhould bee as circumſpect as *Wooers*; leſt when all is done that *Doome* befall vs, which our Maſter doth lay vpon *Mitylene*: *A Towne* in truth (ſaith hee) *finely built, but fooliſhly planted.* And ſo much touching that, which I termed the *Totall Poſture.*

Opidum quidem ædificatum eleganter ſed imprudenter poſitum.

The next in Order is the placing of the *Parts*; About which (to leaue as little as I may in my preſent labour, vnto *Fancie*, which is wilde and irregular) I will propound a Rule of mine owne Collection, vpon which I fell in this maner. I had noted, that all *Arte* was then in trueſt perfection, when it might

might bee reduced to ſome naturall *Principle.* For what are the moſt iudicious *Artiſans* but the *Mimiques* of *Nature*? This led me to contemplate the Fabrique of our owne Bodies, wherein the *High Architect* of the world, had diſplaied ſuch skill, as did ſtupifie, all humane reaſon. There I found the *Hart* as the fountaine of Life placed about the Middle, for the more equall communication of the vitall ſpirits. The *Eyes* ſeated aloft, that they might deſcribe the greater Circle within their view. The *Armes* proiected on each ſide, for eaſe of reaching. Briefly (not to looſe our ſelues in this ſweet ſpeculation) it plainely appeareth, as a Maxime drawne from the Diuine light; That the *Place* of euery part, is to be determined by the *Vſe.*

So then, from naturall *ſtructure*, to proceed to Artificiall; and in the rudeſt things, to preſerue ſome *Image* of the excellenteſt. Let all the principall

chambers

chambers of *Delight*, All *Studies* and *Libraries*, be towards the *East*: For the Morning is a friend to the Muſes. All Offices that require heat, as *Kitchins*, *Stillatories*, *Stoues*, roomes for *Baking*, *Brewing*, *Waſhing*, or the like, would be *Meridionall*. All that need a coole and freſh temper, as *Cellers*, *Pantries*, *Butteries*, *Granaries*, to the *North*. To the ſame ſide likewiſe, all that are appointed for gentle Motion, as *Galleries*, eſpecially in warme Climes, or that otherwiſe require a ſteadie and vnuariable light, as *Pinacothecia* (ſaith *Vitruuius*) by which he intendeth, (if I may gueſſe at his Greeke, as wee muſt doe often euen at his Latine) certaine *Repoſitories* for workes of rarity in Picture or other Arts, by the Italians called *Studioli*, which at any other Quarter, where the courſe of the *Sunne* doth diuerſifie the *Shadowes*, would looſe much of their grace. And by this Rule hauing alwayes regarde to the

Vſe,

Vse, any other Part may bee fitly accommodated.

I muſt here not omit to note that the Ancient *Grecians*, and the *Romanes* by their example in their buildings abroad, where the *Seat* was free, did almoſt Religiouſly ſcituate the *Front* of their houſes, towards the South; perhaps that the Maſters *Eye*, when hee came home, might not be dazeled, or that being illuſtrated, by the *Sunne*, it might yeeld the more gracefull *Aſpect*; or ſome ſuch reaſon. But from this, the Moderne Italians doe varie, whereof I ſhall ſpeake more in another place. Let thus much ſuffice at the preſent for the *Poſition* of the ſeuerall *Members*, wherein muſt bee had as our Author doth often inſinuate, and eſpecially *lib. 6. cap.* 10. a ſingular regard, to the nature of the *Region*: Euery Nation, being tyed aboue al Rules whatſoeuer, to a diſcretion, of prouiding againſt their owne *Inconueniences*: And there-

fore a good *Parler* in Ægypt would perchance make a good *Celler* in England.

There now followeth the ſecond Branch of the generall *Section* touching the *Worke*.

In the *Worke*, I will firſt conſider the principall parts, and afterwards the Acceſſorie, or *Ornaments*; And in the Principall, firſt the Preparation of the *Materials*, and then the Diſpoſition, which is the *Forme*.

Now, concerning the *Materiall* part; Although ſurely, it cannot diſgrace an *Architect*, which doth ſo well become a Philoſopher, to looke into the properties of *Stone* and *Wood*: as that Firre Trees, Cypreſſes, Cedars, and ſuch other *Aereall* aſpiring *Plants*, being by a kinde of naturall rigour (which in a Man I would call pride) inflexible downewards are thereby fitteſt for *Poſts* or *Pillars* or ſuch vpright vſe; that

on the other ſide, Oake, and the like true hartie Timber being ſtrong in all poſitions, may bee better truſted in croſſe and trauerſe worke, for *Summers*, or guirding and binding *beames*, as they tearme them. And ſo likewiſe to obſerue of *Stone*, that ſome, are better within, and other to beare *Weather*: Nay, to deſcend lower euen to examine *Sand* and *Lyme*, and *Clay* (of all which things *Vitruuius* hath diſcourſed, without any daintines, & the moſt of new Writers) I ſay though the *Speculatiue* part of ſuch knowledge be *liberall*: yet to redeeme this Profeſſion, and my preſent paynes, from indignitie; I muſt heere remember that to chooſe and ſort the *materials*, for euery part of the *Fabrique*, is a Dutie more proper to a ſecond *Superintendent*, ouer all the Vnder Artiſans called (as I take it) by our Author, *Officinator lib. 6. cap.* 11. and in that Place expreſſely diſtinguiſhed, from the *Architect*, whoſe glory doth

more conſiſt, in the Deſignement and *Idea* of the whole *Worke*, and his trueſt ambition ſhould be to make the *Forme*, which is the nobler Part (as it were) triumph ouer the *Matter*: whereof I cannot but mention by the way, a forreigne Paterne, namely the Church of *Santa Giuſtina* in *Padoua*: In truth a ſound piece of good Art, where the *Materials* being but ordinarie ſtone, without any garniſhment of ſculpture, doe yet rauiſh the Beholder, (and hee knowes not how) by a ſecret *Harmony* in the *Proportions*. And this indeede is that end, at which in ſome degree, we ſhould ayme euen in the priuateſt workes: whereunto though I make haſte, yet let me firſt collect, a few of the leaſt triuiall cautions, belonging to the *Materiall Prouiſion*.

Leon Batiſta Alberti, is ſo curious, as to wiſh all the *Timber*, cut out of the ſame *Forreſt*, and al the *Stone*, out of the ſame *Quarrie*.

Philibert

Philibert de l'Orme the French Architect goes yet ſomewhat further, and would haue the *Lyme* made of the very ſame *Stone*, which wee intend to imploy in the *Worke*; as belike imagining that they will ſympathize and ioyne the better, by a kinde of *Originall* kindred. But ſuch conceits as theſe ſeeme ſomewhat too fine among this *Rubbage*, though I doe not produce them in ſport. For ſurely the like agreements of nature, may haue oftentimes a diſcreet application to Art. Alwayes it muſt be confeſſed, that to make *Lyme* without any great choyce of refuſe ſtuffe, as we commonly do, is an *Engliſh* error, of no ſmall moment in our Buildings. Whereas the *Italians* at this day, and much more the *Ancients* did burne their firmeſt *ſtone*, and euen fragments of *Marble* where it was copious, which in time became almoſt *Marble* againe, or at leaſt of indiſſoluble duritie, as appeareth in the ſtanding *Thea-*

ters. I muſt here not omit, while I am ſpeaking of this part, a certain forme of *Bricke* deſcribed by *Daniele Barbaro Patriarch* of *Aquileia*, in the largeſt Edition of his Commentary vpon *Vitruuius*. The Figure triangular, euery ſide a foot long, and ſome inch and a halfe thicke, which he doth commend vnto vs for many good conditions: As that they are more commodious in the management, of leſſe expence, of fayrer ſhow, adding much beautie & ſtrength to the *Murall Angles*, where they fall gracefully into an indented *Worke*: ſo as I ſhould wonder that wee haue not taken them into vſe, being propounded by a man of good authoritie in this knowledge; but that all Nations doe ſtart at *Nouelties*, and are indeede maried to their owne *Moulds*. Into this place might aptly fall a doubt, which ſome haue wel moued; whether the ancient *Italians* did burne their *Bricke* or no; which a paſſage or two in *Vitruuius* hath

hath left ambiguous. Surely where the *Naturall* heat is ſtrong enough, to ſupply the *Artificiall*, it were but a curious folly to multiply both *Labour* and *Expence*. And it is beſides very probable, that thoſe *Materials* with a kindely and temperate heate would proue fairer, ſmoother, and leſſe diſtorted, then with a violent: Onely, they ſuffer two exceptions. Firſt, that by ſuch a gentle drying much time will bee loſt which might otherwiſe bee employed in compiling. Next, That they will want a certaine ſucking and ſoaking *Thirſtineſſe*, or a fiery appetite to drinke in the *Lime*, which muſt knit the *Fabrique*. But this queſtion may be confined to the *South*, where there is more Sunne and patience. I will therefore not hinder my courſe, with this incident ſcruple, but cloſe that part which I haue now in hand, about the *Materialls*, with a principall

caution: That ſufficient *Stuffe* and *Money* bee euer ready before we beginne: For when wee build now a piece, and then another by *Fits*, the *Worke* dries and ſinkes vnequally, whereby the *Walles* growe full of *Chinques*, and *Creuices*; Therefore ſuch pawſings are well reproued by *Palladio*, *lib.* 1. *cap.* 1. and by all other. And ſo hauing gleaned theſe few remembrances, touching the preparation of the *Matter*, I may now proceede to the *Diſpoſition* thereof, which muſt forme the *Worke*. In the *Forme*, as I did in the *Seate*, I will firſt conſider the generall *Figuration*, and then the ſeuerall *Members*.

Figures are either *ſimple*, or *Mixed*. The ſimple be either *Circular* or *Angular*. And of Circular, either *Compleate*, or *Deficient*, as *Ouals*, with which kindes I will bee contented, though the Diſtribution might bee more curious.

Now

Now the exact *Circle* is in truth a Figure, which for our purpoſe hath many fit and eminent properties; as fitneſſe, for Commodity and Receit, being the moſt capable; fitneſſe for ſtrength and duration, being the moſt vnited in his parts; Fitneſſe for beautie and delight, as imitating the celeſtiall *Orbes*, and the vniuerſall *Forme*. And it ſeemes, beſides, to haue the approbation of *Nature*, when ſhee worketh by *Inſtinct*, which is her ſecret Schoole: For birds doe build their neſts *Spherically*: But notwithſtanding theſe Attributes, it is in truth a very vnprofitable Figure in priuate *Fabriques*, as being of allother the moſt chargeable, and much roome loſt in the bending of the *Walles*, when it comes to bee diuided: beſides an ill diſtribution of light, except from the *Center* of the *Roofe*. So as anciently it was not vſual, ſaue in their *Temples* and *Amphi-Theaters*, which needed no

Compartitions. The *Ouals* and other imperfect circular Formes, haue the ſame exceptions, and leſſe benefite of capacity: So as there remaynes to bee conſidered in this generall ſuruey of *Figures*, the *Angular*, and the *Mixed* of both. Touching the *Angular*, it may perchance ſound ſomewhat ſtrangely, but it is a true obſeruation, that this *Art* doth neither loue many *Angles* nor few. For firſt, the *Triangle* which hath the feweſt ſides and corners, is of all other the moſt condemned, as being indeed both incapable and infirme (wherof the reaſon ſhall be afterwards rendred) and likewiſe vnreſoluable into any other regular *Forme* then it ſelfe, in the inward *Partitions*.

As for Figures of fiue, ſix, ſeuen, or more *Angles*; They are ſurely fitter for *Militar Architecture*, where the Bulworks may be layed out at the *Corners*, and the ſides ſerue for *Curtaines*, then for ciuill vſe; though I am not ignorant

rant of that famous Piece at *Caprarola*, belonging to the houſe of *Farneſe*, caſt by *Baroccio* into the forme of a *Pentagone*, with a *Circle* inſcribed, where the *Architect* did ingeniouſly wreſtle with diuers inconueniences in diſpoſing of the *Lights*, and in ſauing the vacuities. But as deſignes of ſuch nature doe more aymeat Rarity, then Commoditie: ſo for my part I had rather admire them, then commend them.

Theſe things conſidered, we are both by the Precepts and by the Practiſe of the beſt Builders, to reſolue vpon *Rectangular Squares*, as a meane betweene too few, and too many Angles; and through the equall inclination of the ſides (which make the right Angle) ſtronger then the *Rhombe*, or *Loſenge*, or any other irregular *Square*. But whether the exact *Quadrat*, or the long *Square* be the better, I finde not well determined, though in mine

owne conceit I muſt preferre the latter, prouided that the *Length* doe not exceede the *Latitude* aboue one third part, which would diminiſh the beauty of the *Aſpect*, as ſhall appeare when I come to ſpeake of *Symmetry* and *Proportion.*

Of mixed Figures, partly *Circular*, and partly *Angular*, I ſhall neede to ſay nothing; becauſe hauing handled the ſimple already, the mixed according to their compoſition, doe participate of the ſame reſpects. Onely againſt theſe, there is a proper *Obiection*, that they offend *Vniformity*: Whereof I am therefore opportunely induced to ſay ſomewhat, as farre as ſhal concerne the outward *Aſpect*, which is now in Diſcourſe.

In *Architecture*, there may ſeem to be two oppoſite affectations, *Vniformitie* and *Varietie*, which yet will very well ſuffer a good recõcilement, as we may ſee in the great Paterne of *Nature*, to which

which I must often resort: For surely there can be no *Structure*, more vniforme, then our *Bodies* in the whole *Figuration*: Each side, agreeing with the other, both in the number, in the qualitie, and in the measure of the Parts: And yet some are round, as the *Armes*, some flat, as the *Hands*, some prominent, and some more retired: So as vpon the Mater, wee see that *Diuersitie* doth not destroy *Vniformitie*, and that the Limmes of a noble *Fabrique*, may bee correspondent enough, though they be various; Prouided alwayes, that we doe not runne into certaine extrauagant Inuentions, whereof I shall speake more largely, when I come to the parting and casting of the whole *Worke*. We ought likewise to auoyde Enormous heights of sixe or seuen *Stories*, as well as irregular *Formes*; and the contrary fault of low-distended *Fronts*, is as vnseemely: Or againe, when the *Face* of the Building, is nar-

row and the *Flank* deepe; To all which extreames, ſome particular Nations, or Townes, are ſubiect, whoſe Names may be ciuilly ſpared: And ſo much for the generall *Figuration*, or *Aſpect of* the *Worke*.

Now concerning the Parts in Seueraltie. All the parts of euery *Fabrique*, may be compriſed vnder fiue Heads, which Diuiſion I receiue from *Batiſta Alberti*, to doe him right. And they be theſe.

The *Foundation*.
The *Walles*.
The *Appertions or Ouertures*.
The *Compartition*.
And the *Couer*.

About all which I purpoſe to gather the principall Cautions, and as I paſſe along, I will touch alſo the naturall Reaſons of *Art*, that my diſcourſe may be the leſſe *Mechanicall*.

Firſt then concerning the *Foundation*, which requireth the exacteſt care; For if

if that happen to dance, it will marre all the mirth in the Houſe: Therefore, that wee may found our Habitation firmely, we muſt firſt examine the *Bed* of *Earth* (as I may tearme it,) vpon which we will Build; and then the vnderfillings, or *Subſtruction*, as the Auncients did call it: For the former, we haue a generall precept in *Vitruuius* twice preciſely repeated by him, as a point indeed of mayne conſequence, firſt *lib.* 1. *cap.* 5. And againe more fitly *lib.* 3. *cap.* 3. in theſe words as *Philander* doth well correct the vulgar Copies.

Subſtructionis Fundationes fodiantur (ſaith he) *ſi queant inueniri ad ſolidum, & in ſolido.* By which words I conceiue him to commend vnto vs, not onely, a diligent, but euen a iealous examination what the *Soile* will beare: aduiſing vs, not to reſt vpon any appearing *Soliditie*, vnleſſe the whole *Mould* through which wee cut, haue likewiſe beene *ſolid*; But how deepe wee ſhould goe

in

in this ſearch, hee hath no where to my remembrance determined, as perhaps depending more vpon *Diſcretion*, then *Regularitie*, according to the weight of the *Worke*; yet *Andrea Palladio* hath fairely aduentured to reduce it into Rule: Allowing for that *Cauazione* (as he calleth it) a ſixt part of the *height* of the whole *Fabrique*, vnleſs the Cellers be vnder ground, in which caſe hee would haue vs, (as it ſhould ſeeme) to ſound ſomewhat lower.

Vnderdiging, or Hollowing of the Earth.

Some *Italians* doe preſcribe, that when they haue choſen the *Floore*, or Plot, and laid out the Limits of the *Worke*, wee ſhould firſt of all Digge *Wels* and *Ceſternes*, and other vnderconducts and conueiances, for the *Suillage* of the Houſe, whence may ariſe a double benefit, for both the Nature of the *Mould* or *Soile*, would thereby be ſafely ſearched, and moreouer thoſe open vents, will ſerue to diſcharge ſuch *Vapours*, as hauing otherwiſe no iſſu

migh

might peraduenture ſhake the Building. This is enough for the naturall *Grounding*, which though it bee not a part of the ſolid *Fabrique*, yet here was the fitteſt place to handle it.

There followeth the *Subſtruction*, or Ground-worke of the whole *Edifice*, which muſt ſuſtaine the *Walles*; and this is a kinde of *Artificiall* foundation, as the other was *Natural*. About which theſe are the chiefe Remembrances. Firſt, that the bottome be preciſely leuell, where the *Italians* therefore commonly lay a platforme of good Bord; Then that the loweſt *Ledge* or *Row* be meerely of *Stone*, and the broader the better, cloſely layd without *Morter*, which is a generall caution for all parts in Building, that are contiguous to *Bord* or *Timber*, becauſe *Lime* amd *Wood* are inſociable, and if any where vnfit confiners, then moſt eſpecially in the *Foundation*. Thirdly, that the bredth of the *Subſtruction* bee at leaſt

double to the *inſiſtent Wall*, and more or leſſe, as the weight of the *Fabrique* ſhall require; for as I muſt againe repeate, *Diſcretion* may be freer then *Art*. Laſtly, I finde in ſome a curious precept, that the *Materials* below, be layd as they grew in the *Quarrie*, ſuppoſing them belike to haue moſt ſtrength in their *Naturall* and *Habituall* Poſture. For as *Philippe de l'Orme* obſerueth, the breaking or yeelding of a ſtone in this part, but the bredth of the backe of a knife, will make a *Cleft* of more then half a foot in the *Fabrique* aloft, So important are *Fundamentall errors*. Among which notes I haue ſayd nothing of *Pallification*, or *Pyling* of the *Ground-plot*, commanded by *Vitruuius*, when we build vpon a moiſt or marſhy ſoile, becauſe that were an error in the firſt choyce. And therefore all *Seats* that muſt vſe ſuch prouiſion below (as *Venice* for an eminent example) would perhaps vpon good enquiry, be found

to

to haue beene at firſt choſen by the counſell of *Neceſsity*.

Now the *Foundation* being ſearched, and the *Subſtruction* layd, wee muſt next ſpeake of the *Wals*.

Wals are either entire and continuall, or intermitted; and the *Intermiſsions* be either *Pillars* or *Pylaſters*; for here I had rather handle them, then as ſome others doe, among *Ornaments*.

The entire *Muring* is by Writers diuerſly diſtinguiſhed: By ſome, according to the quality of the *Materials*, as either Stone or Brick, &c. where, by the way, let me note, that to build *Wals* and greater Workes of *Flint*, whereof wee want not example in our *Iland*, & particularly in the *Prouince* of *Kent*, was (as I conceiue) meerly vnknown to the *Ancients*, who obſeruing in that *Materiall*, a kinde of *Metalicall* Nature, or at leaſt a *Fuſibility*, ſeeme to haue reſolued it into nobler vſe; an Art now vtterly loſt, or perchance kept vp by a few *Chymicks*.

micks. Some againe doe not ſo much conſider the quality, as the *Poſition* of the ſayd *Materials*: As when Bricke or ſquared ſtones are laid in their lengths with ſides and heads together, or their points conjoyned like a *Net-worke* (for ſo *Vitruuius* doth call it *reticulatum opus*) of familiar vſe (as it ſhould ſeeme) in his Age, though afterwards growne out of requeſt, euen perhaps for that ſubtill ſpeculatiou which hee himſelfe toucheth; becauſe ſo layd, they are more apt in ſwagging down, to pierce with their points, then in the jacent Poſture, and ſo to creuice the *Wall*: But to leaue ſuch cares to the meaner Artificers, the more eſſentiall are theſe.

That the *Walles* bee moſt exactly perpendicular to the *Ground-worke*: for the right *Angle* (thereon depending) is the true cauſe of all *Stability*, both in Artificiall and Naturall poſitions; A man likewiſe ſtanding firmeſt,

meſt, when he ſtands vprighteſt. That the maſſieſt and heavieſt *Materials* bee the loweſt, as fitter to beare, then to be borne. That the *Worke* as it riſeth, diminiſh in *thickneſſe* proportionally, for eaſe both of weight, and of expence. That certaine courſes or *Ledges* of more ſtrength then the reſt, be interlayed like *Bones*, to ſuſtaine the *Fabrique* from totall ruine, if the vnder parts ſhould decay. Laſtly, that the *Angles* bee firmely bound, which are the *Nerues* of the whole *Edifice*, and therefore are commonly fortified by the *Italians*, euen in their Bricke buildings, on each ſide of the corners, with well ſquared ſtone, yeelding both ſtrength and grace And ſo much touching the entire or ſolid *Wall*.

The intermiſſions (as hath beene ſayd) are either by *Pillars*, or *Pylaſters*.

Pillers which we may likewiſe call *Columnes* (for the word among Artificers is almoſt naturallized) I could

diſtinguiſh into *Simple & Compounded.* But (to tread the beaten and plaineſt way) there are fiue *Orders* of Pillers, according to their dignity and perfection, thus marſhalled:

The *Tuſcan.*
The *Dorique.*
The *Ionique.*
The *Corinthian.*

And the *Compound Order*, or as ſome call it the *Roman*, others more generally the *Italian.*

In which fiue *Orders* I will firſt conſider their *Communities*, and then their *Proprieties.*

Their *Communities* (as farre as I obſerue) are principally three. Firſt, they are all *Round*; for though ſome conceiue *Columna Atticurges* mentioned by *Vitruuius*, *lib.*3.*cap.*3. to haue beene a ſquared Pillar, yet wee muſt paſſe it ouer as irregular, neuer receiued among theſe *Orders*, no more then certaine other licentious inuentions, of *Wreathed,*

thed, and *Vined*, and *Figured Columnes*, which our Author himſelfe condemneth, being in his whole Booke a profeſſed enemy to *Fancies*.

Secondly, they are all *Diminiſhed*, or *Contracted* inſenſibly, more or leſſe, according to the proportion of their heights, from one third part of the whole *Shaft* vpwards, which *Philander* doth preſcribe by his owne preciſe meaſuring of the Ancient remainders, as the moſt gracefull *Diminution*. And here I muſt take leaue to blame a practice growne (I know not how) in certaine places too familiar, of making *Pillars* ſwell in the middle, as if they were ſicke of ſome *Tympany*, or *Dropſie*, without any Authentique Paterne or Rule, to my knowledge, and vnſeemely to the very iudgement of ſight. True it is that in *Vitruuius*, *lib.* 3. *cap.* 2. wee finde theſe words, *De adiectione, quæ adjcitur in medijs Columnis; quæ apud Grecos* Ἔντασις *appellatur, in extremo*

tremo libro erit formatio eius; which paſſage, ſeemeth to haue giuen ſome coũtenance to this error. But of the promiſe there made, as of diuerſe other elſewhere, our Maſter hath fayled vs, either by ſlip of memory, or iniury of time, and ſo wee are left in the darke. Alwayes ſure I am, that beſides the authority of example which it wanteth, It is likewiſe contrary to the Originall and Naturall *Type*, in *Trees*, which at firſt was imitated in *Pillars*, as *Vitruuius* himſelfe obſerueth, *lib.* 5. *cap.* 1. For who euer ſaw any *Cypreſſe*, or *Pine*, (which are there alledged) ſmall below and aboue, and tumerous in the middle, vnleſſe it were ſome diſeaſed Plant, as Nature (though otherwiſe the comlieſt *Miſtreſſe*) hath now and then her deformities and *Irregularities*.

Thirdly, they haue all their *Vnderſettings*, or *Pediſtals*, in height a third part of the whole *Columne*, comprehending the *Baſe* and *Capitall*; and their vpper

vpper Adiuncts, as *Architraue*, *Frize*, and *Cornice*, a fourth part of the ſayd Pillar; which rule of ſingular vſe and facility I find ſetled by *Iacobo Baroccio*, and hold him a more credible Author, as a man that moſt intended this piece, then any that vary from him in thoſe *Dimentions*.

Theſe are their moſt conſiderable *Communities* and agreements.

Their *Proprieties* or *Diſtinctions* will beſt appeare by ſome reaſonable deſcription of them all, together with their *Architraues*, *Frizes*, and *Cornices*, as they are vſually handled.

Firſt therefore the *Tuſcan* is a plain, maſſie, rurall Pillar, reſembling ſome ſturdy well-limmed Labourer, homely clad, in which kinde of compariſons *Vitruuius* himſelfe ſeemeth to take pleaſure, *lib.* 4. *cap.* 1. The length thereof ſhall be ſix *Diameters*, of the groſſeſt of the Pillar below. Of all proportions, in truth, the moſt naturall; For our

Author tells vs, *lib.* 3. *cap.* 1. that the foote of a man is the ſixt part of his bodie in ordinary meaſure, and *Man* himſelfe, according to the ſaying of *Protagoras* (which *Ariſtotle* doth ſomewhere vouchſafe to celebrate) is πάντων χρημάτων μέτρον: as it were the *Prototype* of all exact *Symmetrie*, which we haue had other occaſion to toueh before: This *Columne* I haue by good warrant called *Rurall*, *Vitru. cap.* 2. *lib.* 3. And therefore we need not conſider his rank among the reſt. The diſtance or *Intercolumniation* (which word Artificers doe vſually borrow) may bee neere foure of his owne *Diameters*, becauſe the *Materials* commonly layd ouer this Pillar, were rather of wood then ſtone; through the lightneſſe whereof the *Architraue* could not ſuffer, though thinnely ſupported, nor the *Columne* it ſelfe being ſo ſubſtantiall. The *Contraction* aloft ſhall be (according to the moſt receiued practice)

tice) one fourth part of his thickneſſe below. To conclude, (for I intend only as much as ſhall ſerue for a due Diſtinguiſhment, and not to delineate every petty member) the *Tuſcan* is of all the rudeſt Pillar, and his principall Character *Simplicity*.

The *Dorique Order* is the graueſt that hath beene receiued into ciuill vſe, preſeruing, in compariſon of thoſe that follow, a more *Maſculine Aſpect*, and litle trimmer then the *Tuſcan* that went before, ſaue a ſober garniſhment now and then of *Lions heads* in the *Cornice*, and of *Triglyphs* and *Metopes* alwayes in the *Frize*. Sometimes likewiſe, but rarely, chaneled, and a little ſlight ſculpture about the *Hypotrachelion*, or *Necke* vnder the *Capitall*. The length, ſeuen *Diameters*. His ranke or degree, is the loweſt by all *Congruity*, as being more maſſie then the other three, and conſequently abler to ſupport. The *Intercolumniation*, thrice as

much as his thickneſſe below. The *Contraction* aloft, one fift of the ſame meaſure. To diſcerne him, will bee a peece rather of good *Heraldry*, then of *Architecture*: For he is beſt knowne by his place, when he is in company, and by the peculiar ornament of his *Frize* (before mentioned) when he is alone.

The *Ionique Order* doth repreſent a kinde of Feminine ſlenderneſſe, yet ſaith *Vitruuius*, not like a light Houſewife, but in a decent dreſſing, hath much of the *Matrone*. The length eight *Diameters*. In degree as in ſubſtantialneſſe, next aboue the *Dorique*, ſuſtayning the third, and adorning the ſecond Story. The *Intercolumniation* two of his owne *Diameters*. The *Contraction* one ſixt part. Beſt knowne by his trimmings, for the bodie of this *Columne* is perpetually chaneled, like a thicke plighted Gowne. The *Capitall* dreſſed on each ſide, not much vnlike womens Wires, in a ſpirall wreathing

thing, which they call the *Ionian Voluta*. The *Cornice* indented. The *Frize* swelling like a pillow; And therefore by *Vitruuius*, not vnelegantly tearmed *Puluinata*. These are his best *Characters*.

The *Corinthian*, is a *Columne*, laciuiously decked like a Curtezane, and therein much participating (as all Inuentions doe) of the place where they were first borne: *Corinthe* hauing been without controuersie one of the wantonest Townes in the world. This *Order* is of nine *Diameters*. His degree, one Stage aboue the *Ionique*, and alwaies the highest of the simple *Orders*. The *Intercolumniation* two of his *Diameters*, and a fourth part more, which is of all other the comelyest distance. The *Contraction* one seuenth Part. In the *Cornice* both *Dentelli* and *Modiglioni*. The *Frize*, adorned with all kinds of *Figures* and various Compartments at Pleasure. The *Capitall*, cut into the beau-

Our Artizans call them Teeth and Cartouzes.

beautifulleſt leafe, that Nature doth yeeld, which ſurely next the *Aconitum Pardalianches* (reiected perchance as an ominous *Plant*) is the *Acanthus or Branca Vrſina* though *Vitruuius* doe impute the choice thereof vnto Chance, and wee muſt be contented to beleeue him : In ſhort, As *Plaineneſſe* did Charactarize the *Tuſcan*, ſo muſt *Delicacie* and *Varietie* the *Corinthian* Pillar, beſides the height of his Ranke.

The laſt is the *Compounded Order*: His *name* being a briefe of his *Nature*. For this Pillar is nothing in effect, but a *Medlie*, or an *Amaſſe* of all the precedent *Ornaments*, making a new kinde, by ſtealth, and though the moſt richly tricked, yet the pooreſt in this, that he is a borrower of all his Beautie. His length, (that he may haue ſomewhat of his owne) ſhalbe of ten *Diameters*. His degree ſhould, no doubt, bee the higheſt by reaſons before yeelded.

But

But few *Palaces* Auncient or Moderne exceede the third of the Ciuill *Orders*. The *Intercolumniation*, but a *Diameter* and an halfe, or alwayes somewhat lesse then two. The *Contraction* of this Pillar must be one eight Part lesse aboue then belowe. To know him will be easie by the verie mixture of his *Ornaments*, and *Cloathing*.

And so much touching the fiue *Orders* of *Columnes*, which I will conclude with two or three, not impertinent *Cautions*:

First, that where more of these *Orders* then one, shalbe set in seuerall *Stories* or *Contignations*, there must bee an exquisite care, to place the *Columnes* precisely, one ouer another, that so, the *solid* may answere to the *solid*, and the *vacuities* to the *vacuities*, as well for *Beautie*, as strength of the *Fabrique*: And by this Caution the Consequence is plaine, that when wee speake of the *Intercolumniation* or *distance*, which is due

due to each *Order*, we meane in a *Dorique, Ionicall, Corinthian Porch*, or *Cloiſter*, or the like of one *Contignation*, and not in Storied buildings.

Secondly, let the *Columnes* aboue be a forth part leſſe then thoſe below, ſaith *Vitruuius, lib.* 5. *cap.* 1. A ſtrange Precept, in my opinion, and ſo ſtrange, that peraduenture it were more ſutable, euen to his owne Principles, to make them rather a fourth Part greater, For *lib.* 3. *cap.* 2. where our Maſter handleth the *Contractions* of Pillars, wee haue an *Optique* Rule, that the higher they are, the leſſe ſhould be alwayes their diminution aloft, becauſe the *Eye* it ſelfe, doth naturally contract all *Obiects* more or leſſe, according to the *Diſtance*; which conſideration, may, at firſt ſight, ſeeme to haue beene forgotten in the Caution wee haue now giuen; but *Vitruuius* (the beſt Interpreter of himſelfe) hath in the ſame place of his fift Booke, well acquitted his

his memorie by these words: *Columnæ ſuperiores quarta parte minores, quàm inferiores, ſunt conſtituendæ; propterea quòd, operi ferendo quæ ſunt inferiora, firmiora eſſe debent*; preferring like a wiſe Mechanick, the *naturall* Reaſon, before the *Mathematicall*, and ſenſible conceits before abſtracted. And yet *lib. 4. cap. 4.* he ſeemeth againe, to affect *Subtiltie*, allowing pillars the more they are chaneled, to bee the more ſlender; becauſe while our *Eye* (ſaith hee) doth as it were diſtinctly meaſure, the eminent and the hollowed Parts, the Totall Obiect appeareth the bigger, and ſo as much as thoſe excauations, doe ſubtract, is ſupplied by a *Fallacie* of the *Sight*: But here mee thinks, our Maſter ſhould likewiſe haue rather conſidered, the naturall Inconuenience; for though Pillars by chaneling, bee ſeemingly ingroſſed to our Sight, yet they are truely weakened in themſelues; and therefore ought perchance

in ſound reaſon not to bee the more ſlender, but the more Corpulent, vnleſſe apparances preponder truths, but *Contra Magiſtrum, non eſt diſputandum.*

A third Caution ſhalbe that all the *proiected* or *Iutting* Parts (as they are tearmed) be very moderate, eſpecially, the *Cornices* of the lower *Orders*, for whileſt ſome thinke to giue them, a beautifull and royall Aſpect, by their largeneſſe, they ſometimes hinder both the Light within, (whereof I ſhall ſpeake more in due place) and likewiſe detract much from the viewe of the *Front* without, as well appeareth in one of the principall Fabriques at *Venice*, namely the Palace, of the Duke *Grimani* on the *Canal Grande*, which by this magnificent errour, is ſomewhat diſgraced: I neede now ſay no more concerning *Columnes* & their *Adiuncts*, about which Architects make ſuch a noyſe in their Bookes, as if the very tearmes of *Architraues*, and *Frizes*, and

and *Cornices*, and the like, were enough to graduate a Master of this *Art*; yet let me before I passe to other matter, preuent a familiar Obiection; It will perchance bee said, that all this Doctrine touching the fiue *Orders*, were fitter for the *Quarries* of *Asia* which yeelded 127 *Columnes* of 60 *Foote* high, to the *Ephesian Temple*, or for *Numidia* where *Marbles* abound; then for the *Spirits* of *England*, who must be contented with more ignoble *Materials*: To which I answere, that this neede not discourage vs: For I haue often at *Venice* viewed with much pleasure, an *Atrium Græcum* (we may translate it an *Anti porch*, after the Greeke manner) raised by *Andrea Palladio*, vpon eight *Columnes* of the *Compounded Order*; The *Bases* of Stone, without *Pedistals*, The *shafts* or Bodies, of meere Brick; three foote and an halfe thicke in the *Diameter* below, and consequently thirty fiue foote high, as

himſelfe hath deſcribed them in his ſecond Booke; Then which, mine Eye, hath neuer yet beheld any *Columnes*, more ſtately of Stone or Marble; For the Bricks, hauing firſt beene formed in a *Circular Mould*, and then cut before their burning into foure quarters or more, the ſides afterwards ioyne ſo cloſely, and the points concenter ſo exactly, that the *Pillars* appeare one *entire* Peece; which ſhort deſcription, I could not omit, that thereby may appeare, how in truth wee want rather *Art* then ſtuffe, to ſatisfie our greateſt *Fancies*.

After *Pillars*, the next in my diſtribution, are *Pylaſters*, mentioned by *Vitruuius*, *lib.* 5. *cap.* 1. and ſcant any where elſe vnder the name of *Paraſtates*, as *Philander* conceiueth, which *Grammaticall* point (though perchance not very cleere) I am contented to examine no farther. Alwayes, what we meane by the thing it ſelfe, is plaine enough

enough in our owne vulgar; Touching which, I will briefly collect the moſt conſiderable notes.

Pylaſters, muſt not bee too tall and ſlender, leaſt they reſemble *Pillars*, nor too *Dwarfiſh* and groſſe, leaſt they imitate the *Piles* or *Peeres* of Bridges: Smoothneſſe doth not ſo naturally become them, as a Ruſticke *Superficies*, for they ayme more at *State* & *Srength*, then *Elegancie*. In priuate Buildings they ought not to be narrower, then one Third, nor broader then two parts of the whole Vacuity, betweene *Pylaſter* and *Pylaſter*; but to thoſe that ſtand at the *Corners*, may be allowed a little more Latitude by diſcretion, for ſtrength of the *Angles*: In *Theaters* and *Amphi-theaters*, and ſuch weighty Workes, *Palladio* obſerueth them, to haue beene as broad as the halfe, and now and then as the whole *Vacuitie*: Hee noteth likewiſe (and others conſent with him) that their

true *Proportion*, ſhould bee an *exact Square*; But for leſſening of expence, and inlarging of roome, they are commonly narrower in *Flanke*, then in *Front*: Their principall *Grace* doth conſiſt in halfe or whole *Pillars*, applied vnto them; in which caſe it is well noted by Authors, that the *Columnes* may bee allowed ſomewhat aboue their ordinary length, becauſe they leane vnto ſo good *Supporters*. And thus much ſhall ſufice touching *Pilaſters*, which is a cheape, & a ſtrong, and a noble kinde of *Structure*.

Now becauſe they are oftner, both for Beauty and Maieſty, found *Arched*, then otherwiſe; I am heere orderly led to ſpeake of *Arches*, and vnder the ſame head of *Vaults*: for an *Arch* is nothing indeed but a contracted *Vault*, and a *Vault* is but a dilated *Arch*: Therefore to handle this Piece both compendiouſly, and fundamentally, I will reſolue the whole buſineſſe into a few *Theoremes*. *The-*

Theoreme 1.

All ſolid *Materials* free from impediment, doe deſcend *perpendicularly* downewards, becauſe *ponderoſity* is a naturall inclination to the *Center* of the World, and *Nature* performeth her motions by the ſhorteſt lines.

Theoreme 2.

Brickes moulded in their ordinary *Rectangular* forme, if they ſhall be layd one by another in a leuell row, betweene any Supporters ſuſtayning the two ends, then all the pieces between, will neceſſarily ſinke, euen by their owne naturall *Grauity*, and much more if they ſuffer any depreſſion by other waight aboue them, becauſe their ſides being *parallell*, they haue roome to deſcend *perpendicularly*, without impeachment, according to the former *Theoreme*; Therefore to make them ſtand, wee muſt either change their *Poſture*, or their *Figure*, or both.

If

Theorme 3.

If Brickes moulded, or Stones ſquared *Cuncatim* (that is, *Wedge wiſe*, broader aboue then below) ſhall be layd in a *Row leuell*, with their ends ſupported, as in the precedent *Theoreme*, pointing all to one *Center*; then none of the pieces betweene can ſinke till the *Supporters* giue way, becauſe they want roome in that *Figuration*, to deſcend *perpendicularly*. But this is yet a weake piece of *Structure*, becauſe the *Supporters* are ſubiect to much impulſion, eſpecially if the line be long; for which reaſon this *Forme* is ſeldome vſed, but ouer *Windowes*, or narrowe *Doores*. Therfore to fortifie the *Work* as in this third *Theoreme* wee haue ſuppoſed the *Figure* of all the *Materials* different from thoſe in the ſecond: So likewiſe wee muſt now change the *Poſture*, as will appeare in the *Theoreme* following.

Theoreme 4.

If the *Materials* figured as before

Wedge-

Wedge-wise, ſhall not be diſpoſed leuelly, but in forme of ſome *Arch*, or portion of a *Circle*, pointing all to the ſame *Center*: In this caſe neither the pieces of the ſayd *Arch*, can ſinke downewards, through want of roome to deſcend* perpendicularly: Nor the *Supporters* or *Butments* (as they are tearmed) of the ſayd *Arch* can ſuffer ſo much violence, as in the precedent flat Poſture, for the roundneſſe will alwayes make the Incumbent waight, rather to reſt vpon the *Supporters*, then to ſhoue them; whence may be drawn an euident *Corolary*; that the ſafeſt of all *Arches* is the *Semicircular*, and of all *Vaults* the *Hemiſphere*, though not abſolutely exempted from ſome naturall weakeneſſe,* as *Barnardino Baldi Abbot* of *Guaſtalla*, in his Commentary vpon *Ariſtotles Mechaniques*, doth very well prooue; where let me note by the way, that when any thing is *Mathematically* demonſtrated weake, it is much more

* *By the firſt Theor.*

which is the ſole prerogatiue of perpendicular lines and right Angles.

Mechanically weake: Errors euer occurring more eaſily in the management of *Groſſe Materials*, then *Lineall Deſignes.*

Theoreme 5.

As Semicircular *Arches*, or Hemiſpherical *Vaults*, being raiſed vpon the totall *Diameter*, bee of all other the roundeſt, and conſequently the ſecureſt, by the precedent *Theoreme*: So thoſe are the gracefulleſt, which keeping preciſely the ſame height, ſhall yet bee diſtended, one fourteenth part longer then the ſayd entire *Diameter*; which addition of diſtent will conferre much to their *Beauty*, and detract but little from their *Srength.*

This obſeruation I finde in *Leon-Batiſta Alberti*; ' But the practice how to preſerue the ſame height, and yet diſtend the Armes or ends of the *Arch*, is in *Albert Durers Geometry*, who taught the *Italians* many an excellent *Line*, of great vſe in this *Art*.

Vpon

Vpon theſe fiue *Theoremes*, all the skill of *Arching* and *Vaulting* is grounded: As for thoſe *Arches*, which our Artizans call of the third and fourth point; And the *Tuſcan* writers *di terzo*, and *di quarto acuto*, becauſe they alwayes concurre in an acute *Angle*, and doe ſpring from diuiſion of the *Diameter*, into three, foure, or more parts at pleaſure; I ſay, ſuch as theſe, both for the naturall imbecility of the ſharpe *Angle* it ſelfe, and likewiſe for their very *Vncomelineſſe*, ought to bee exiled from judicious eyes, and left to their firſt inuentors, the *Gothes* or *Lumbards*, amongſt other *Reliques* of that barbarous *Age*.

Thus of my firſt *Partition* of the parts of euery *Fabrique*, into fiue Heads, hauing gone through the two former, & been incidently carried into this laſt doctrine touching *Arches* and *Vaults*. The next now in order are the *Apertions*; vnder which tearme I

doe comprehend *Doores*, *Windowes*, *Staire-cases*, *Chimnies*, or other *Conducts*: In ſhort, all *Inlets* or *Outlets*; To which belong two generall *Cautions*.

Firſt, That they bee as few in number, and as moderate in Dimenſion, as may poſſibly conſiſt with other due reſpects: for in a word, all *Openings* are *Weaknings*.

Secondly, That they doe not approach too neere the *Angles* of the Wals; for it were indeed a moſt eſſentiall *Soleciſme* to weaken that part, which muſt ſtrengthen all the reſt: A precept well recorded, but ill practiſed by the *Italians* themſelues, particularly at *Venice*, where I haue obſerued diuerſe *Pergoli*, or *Meniana* (as *Vitruuius* ſeemeth to call them, which are certaine balliſed out-ſtandings to ſatisfie curioſity of ſight) very dangerouſly ſet forth, vpon the very point it ſelfe, of the *Murall Angle*.

Now,

Now, Albeit I make haſte, to the caſting and comparting of the whole *Worke*, (being indeede the very Definitiue Summe of this *Art*, to diſtribute vſefully and gracefully a well choſen *Plot*) yet I will firſt vnder their ſeuerall Heads, collect briefly ſome of the choiſeſt notes belonging to theſe particular *Ouertures*.

Of *Doores* and *Windowes*.

THeſe *In lets* of *Men* and of *Light*, I couple together, becauſe I find their due Dimenſions, brought vnder one Rule, by *Leone Alberti* (a learned Searcher) who from the Schoole of *Pythagoras* (where it was a fundamentall *Maxime*, that the *Images* of all things are latent in *Numbers*) doth determine the comelieſt Proportion, betweene breadths and heights; Reducing *Symmetrie* to *Symphonie*, and the *harmonie* of *Sounde*, to a kinde of *harmonie* in *Sight*, after this manner: The two

principall *Conſonances*, that moſt rauiſh the Eare, are by conſent of all Nature, the *fift*, and the *Octaue*; whereof the firſt riſeth radically, from the proportion, betweene *two* and *three*. The other from the double *Internalle*, betweene *One* and *Two*, or betweene *Two* and *Foure* &c. Now if we ſhall tranſport theſe proportions, from Audible to viſible *Obiects*; and apply them as they ſhall fall fitteſt (the nature of the Place conſidered) Namely in ſome *Windowes*, and *Doores*, the *Symmetrie* of *Two* to *Three*, in their Breadth and Length; In others the double as aforeſaid; There will indubitably reſult from either, a graceſull and *harmonious* contentment, to the Eye; Which ſpeculation though it may appeare vnto vulgar *Artizans*, perhaps too ſubtile, and too ſublime, yet wee muſt remember, that *Vitruuius* himſelfe doth determine many things in his profeſſion; by *Muſicall* grounds, and much commendeth

commendeth in an *Architect*, a *Philoſophical* Spirit; that is, he would haue him (as I conceaue it) to be no ſuperficiall, and floating *Artificer*; but a *Diuer* into *Cauſes*, and into the *Myſteries* of *Proportion*; Of the *Ornaments*, belonging both to *Doores* and *Windowes*, I ſhall ſpeake in other place; But let mee heere adde one obſeruation; That our *Maſter* (as appeareth by diuers paſſages, and particularly *lib. 6. cap. 9*) ſeemes to haue beene an extreame Louer of *Luminous Roomes*; And indeede I muſt confeſſe that a Franke Light, can miſbecome noe A*Edifice* whatſoeuer, *Temples* onely excepted; which were anciently darke, as they are likewiſe at this day in ſome Proportion. *Deuotion more requiring collected then defuſed Spirits.* Yet on the other ſide we muſt take heede to make a Houſe (though but for ciuill vſe) all *Eyes*, like *Argus*; which in Northerne *Climes* would be too could, In *Southerne*, too hot: And therefore the matter

Lumen eſt diffuſiuum ſui & alieni.

matter indeede importeth more then a merry compariſon. Beſides, There is no part of *Structure* either more expenceſull, then *Windowes*; or more ruinous; not onely for that vulgar reaſon, as being expoſed to all violence of weather; but becauſe conſiſting of ſo different and vnſociable pieces, as *Wood*, *Iron*, *Leade*, and *Glaſſe*, and thoſe ſmall and weake, they are eaſily ſhaken; I muſt likewiſe remember one thing, (though it be but a *Grammatical* note) touching *Doores*. Some were *Fores*, & Some were *Valuæ*. Thoſe (as the very word may ſeeme to import) did open *outwards*, Theſe *inwards*; And were commonly of two *Leaues* or *Panes*, (as we call them) thereby requiring indeed, a leſſer *Circuit* in their *vnfoulding*; And therefore much in vſe among *Italians* at this day; But I muſt charge them with an Imperfection, for though they let in as well as the former, yet they keepe out worſe.

Of

Of Staire-caſes.

TO make a compleate *Staire-caſe*, is a curious peece of *Architecture* : The vulgar Cautions are theſe.

That it haue a very liberall *Light*, againſt all Caſualtie of *Slippes*, and *Falles*.

That the ſpace aboue the *Head*, bee large and *Airy*, which the *Italians* vſe to call *Vn bel-sfogolo*, as it were good *Ventilation*, becauſe a man doth ſpend much breath in mounting.

That the *Halfe-paces* bee well diſtributed, at competent diſtances, for reposing on the way.

That to auoyd *Encounters*, and beſides to gratifie the beholder, the whole *Staire-caſe* haue no nigard *Latitude*, that is, for the principall *Aſcent*, at leaſt ten foot in *Royall Buildings*.

That the breadth of euery ſingle *Step* or *Staire* bee neuer leſſe then one

foote, nor more then eighteen inches.

That they exceede by no meanes halfe a foot in their height or thicknesse; for our *Legges* doe labour more in *Eleuation*, then in *Distention*: These I say are familiar remembrances, to which let me adde;

That the steps bee layd where they joyne *Con vn tantino di scarpa*; we may translate it somewhat *sloaping*, that so the foot may in a sort both ascend and descend together, which though obserued by few, is a secret and delicate deception of the paines in mounting.

Lastly, to reduce this doctrine to some *Naturall*, or at least *Mathematicall* ground, (our *Master*, as we see, *lib.9. cap.2.*) borroweth those proportions, that make the sides of a *Rectangular Triangle*, which the Ancient Schoole did expresse in lowest tearmes, by the numbers of 3.4. and 5. That is, *Three* for the *Perpendicular*, from the *Staire-head* to the ground; *Foure* for the

Ground

Ground-line it ſelfe, or *Receſsion* from the wall; And *Fiue* for the whole *Inclination* or ſlopeneſſe in the aſcent, which proportion, ſaith he, will make *Temperatas graduum librationes*. Hitherto of *Staire-caſes* which are direct: There are likewiſe *Spirall*, or *Cockle ſtaires*, either *Circular*, or *Ouall*, and ſometimes running about a *Pillar*, ſometimes vacant, wherein *Palladio*, (A man in this point of ſingular felicity) was wont to diuide the *Diameter*, of the firſt ſort into three parts, yeelding one to the *Pillar*, and two to the *Steps*; Of the ſecond into foure, whereof he gaue two to the *Staires*, and two to the *Vacuitie*, which had all their light from aboue, And this in exact *Ouals*, is a Maſter-piece.

Of Chimnies.

IN the preſent buſineſſe, *Italians* (who make very frugall fires, are perchance not the beſt Counſellers.) Therefore

from them we may better learne, both how to raiſe faire *Mantels* within the roomes, and how to diſguiſe gracefully the ſhafts of *Chimnies* abroad (as they vſe) in ſundry formes (which I ſhall handle in the latter part of my labour) and the reſt I will extract from *Philippe de l'Orme*: In this part of his *Worke* more diligent, then in any other, or, to doe him right, then any man elſe.

Firſt, hee obſerueth very ſoberly, that who in the diſpoſition of any Building will conſider the nature of the *Region*, and the *Windes* that ordinarily blow, from this, or that *Quarter*; might ſo caſt the roomes, which ſhall moſt need fire; that hee ſhould little feare the incommodity of *Smoake*, and therefore hee thinkes, that inconuenience, for the moſt part to proceede from ſome inconſiderate beginning. Or if the error lay not in the *Diſpoſition* but in the *Structure* it ſelfe; then hee

makes

makes a *Logicall* enquiry; That either the *Winde* is too much let in aboue, at the mouth of the *Shafte*, or the *Smoke* ſtifeled below; If none of theſe, Then there is a repulſion of the *Fume*, by ſome higher *Hill* or *Fabrique*, that ſhall ouertoppe the *Chimney* and worke the former effect: If likewiſe not this, Then he concludes, that the Roome which is infeſted, muſt bee neceſſarily both little and cloſe, ſo as the ſmoke cannot iſſue by a naturall *Principle*, wanting a ſucceſſion and ſupply of new *Ayre*.

Now, In theſe caſes he ſuggeſteth diuers Artificiall remedies; of which I will allow one, a little *Deſcription*, becauſe it fauoureth of *Philoſophie*, and was touched by *Vitruuius* himſelfe, *lib.* 1 *cap.* 6. but by this man ingeniouſly applied to the preſent vſe: Hee will haue vs prouide two hollow *braſſe Balles* of reaſonable capacitie, with little holes open in both, for reception of

Water, when the Aire ſhalbe firſt ſucked out; One of theſe wee muſt place with the hole vpwards, vpon an yron Wire, that ſhall trauerſe the *Chimney*, a little aboue the *Mantell*, at the ordinary height of the ſharpeſt heate or flames, whereof the water within being rarified, and by rarifaction reſolued into *Winde*, will breake out, and ſo force vp the ſmoke, which otherwiſe might linger in the *Tunnell*, by the way, and oftentimes reuert; With the other, (ſaith he) wee may ſupply the place of the former, when it is exhauſted, or for a neede blow the *Fire* in the meane while; Which Inuention I haue interpoſed for ſome little intertainement of the Reader; I will conclude with a note from *Palladio*, who obſerueth that the *Ancients* did warme their Roomes, with certaine ſecret *Pipes* that came through the Walles, tranſporting heate (as I conceiue it) to ſundry parts of the Houſe, from one common

common *Furnace*; I am ready to baptize them *Caliducts*, as well as they are tearmed *Venti-ducts*, and *Aquæ-ducts* that conuey Winde and Water; which whether it were a cuſtome or a delicacie, was ſurely both for thrift, and for vſe, far beyond the German *Stoues*; And I ſhould preferre it likewiſe before our owne faſhion, if the very ſight of a fire, did not adde to the Roome a kinde of *Reputation*,* as old *Homer* doth teach vs in a verſe, ſufficient to prooue that himſelfe was not blinde, as ſome would laie to his charge.

* ἀιδρείην ϗ πυ-
ρὸς γενεσσητῆσι
δίκας ἰδίῳ.
Hom. Epig.

Touching *Conducts* for the *Suillage* and other neceſſities of the Houſe, (which how baſe ſoeuer in vſe, yet for health of the Inhabitants, are as conſiderable, and perhaps more then the reſt) I finde in our Authors, this Counſell; That *Art* ſhould imitate *Nature*, in thoſe ignoble conueyances; and ſeparate them from Sight, (where there wants a running Water) into the moſt

moſt remote, and loweſt, and thickeſt part of the *Foundation* : with ſecret vents paſſing vp through the Walles like a *Tunnell* to the wilde Aire aloft: which all Italian Artizans commend for the diſcharge of noyſome vapours, though elſe-where to my knowledge little practiſed.

Thus hauing conſidered the precedent *Appertions*, or *Ouertures*, in ſeuerall-tie according to their particular Requiſites, I am now come to the caſting and *Contexture* of the whole *Worke*, comprehended vnder the tearme of *Compartition* : Into which (being the maineſt piece) I cannot enter without a few generall Precautions, as I haue done in other Parts.

Firſt therefore, Let no man that intendeth to build, ſetle his Fancie vpon a draught of the *Worke* in *paper*, how exactly ſoeuer meaſured, or neately ſet off in *perſpectiue*; And much leſſe vpon a bare *Plant* thereof, as they call the

the *Schiographia* or *Ground lines*; without a *Modell* or *Type* of the whole *Structure*, and of euery parcell and Partition in *Paſtboord* or *Wood*.

Next that the ſaid Modell bee as plaine as may be, without colours or other beautifying, leſt the pleaſure of the *Eye* preoccupate the *Iudgement*; which aduiſe omited by the *Italian Architects*, I finde in *Philippe de l' Orme*, and therefore (though *France* bee not the *Theater* of beſt Buildings) it did merit ſome mention of his name.

Laſtly, the bigger that this *Type* be, it is ſtill the better, not that I will perſwade a man to ſuch an enormity, as that *Modell* made by *Antonio Labaco*, of Saint *Peters* Church in *Rome*, containing 22. foot in length, 16. in breadth, and 13 in heighth, and coſting 4184. crownes: The price in truth of a reaſonable *Chappell*: Yet in a *Fabrique* of ſome 40. or 50 thouſand pounds charge, I wiſh 30. pounds at leaſt layd

out before hand in an exact *Modell*; for a little misery in the *Premisses*, may easily breed some absurdity of greater charge, in the *Conclusion*.

Now, after these premonishments, I will come to the *Compartition* it selfe; By which, the Authors of this *Art* (as hath beene touched before) doe vnderstand, a *gracefull* and *vsefull* distribution, of the whole *Ground-plot* both for roomes of *Office*, and of *Reception* or *Entertainement*, as farre as the *Capacity* thereof, and the nature of the *Countrey* will comport. Which circumstances in the present *Subiect*, are all of maine consideration, and might yeeld more discourse then an *Elementall Rapsodie* will permit. Therefore (to anatomize briefly this Definition) the *Gracefulnesse* (whereof wee speake) will consist in double *Analogie*, or correspondencie. First, between the *Parts* and the *Whole*, whereby a *great Fabrique* should haue *great Partitions*, *great*

Lights

Lights, great Entrances, great Pillars or *Pylasters*; In summe, all the *Members great.* The next betweene the *Parts* themselues, not only, considering their *Breadths*, and *Lengths*, as before, when wee spake of *Doores* and *Windowes*; but here likewise enters a third respect of *Height*, a point (I must confesse) hardly reduceable to any generall precept.

True it is, that the *Ancients* did determine the *Longitude* of all *Roomes*, which were longer then broade, by the double of their *Latitude*, *Vitruuius lib.6.cap.5*. And the *Heighth* by the halfe of the breadth and length summed together But when the Roome was precisely square, they made the *Height* half as much more as the *Latitude*; which Dimensions the moderne *Architects* haue taken leaue to varie vpon discretion: Sometimes squaring the *Latitude*, and then making the *Diagoniall* or ouerthwart Line, from *Angle* to *Angle*, of the said *Square*, the measure of the

Heighth ſometimes more, but ſeldome lower then the full breadth it ſelfe; which boldneſſe of quitting the old *Proportions*, ſome attribute firſt to *Michael Angelo da Buonaroti*, perchance vpon the credite he had before gotten, in two other *Arts*.

The ſecond point is *Vſefulneſſe*, which will conſiſt in a ſufficient *Number* of Roomes, of all ſorts, and in their apt *Coherence*, without *diſtraction*, without *confuſion*; ſo as the beholder may not onely call it, *Vna Fabrica ben raccolta*: as *Italians* vſe to ſpeake of well vnited Workes, but likewiſe that it may appeare *airie* and *ſpiritous*, and fit for the welcome of cheerefull Gueſts; about which the principall difficultie will bee in contriuing the *Lightes*, and *Staire-caſes*, whereof I will touch a note or two: For the firſt, I obſerue that the ancient *Architects* were at much eaſe. For both the *Greekes* and *Romanes* (of whoſe priuate dwellings

Vi-

Vitruuius hath left vs ſome deſcription) had commonly two *Cloyſtered* open *Courts*, one ſeruing for the *Womens* ſide, and the other for the *Men*: who yet perchance now adayes would take ſo much ſeperation vnkindly. Howſoeuer, by this meanes, the reception of *light*, into the Bodie of the building, was very prompt, both from without and from within: which we muſt now ſupplie either by ſome open *Forme* of the *Fabrique*, or among gracefull refuges, by *Tarraſing* any *Storie*, which is in danger of darkeneſſe; or laſtly, by *perpendicular lights*, from the *Roofe*: of all other the moſt naturall, as ſhalbe ſhewed anon. For the ſecond dificultie: which is caſting of the *Stayre-caſes*; That being in it ſelfe no hard point, but onely as they are incombrances of roome for other vſe: (which lights were not) I am therefore aptly moued heere to ſpeake of them. And firſt of Offices.

I haue marked a willingneſſe, in the *Italian* Artiſans, to deſtribute the *Kychin*, *Pantrie*, *Bakehouſe*, *waſhing Roomes*: and euen the *Buttrie* likewiſe, vnder ground; next aboue the *Foundation*, and ſometimes Leuel with the plaine, or *Floore* of the *Cellar*: rayſing the firſt *Aſcent* into the houſe *Fifteene Foote* or more for that Ende, which beſides the benefit of remouing ſuch *Annoyes* out of ſight, and the gayning of ſo much more roome aboue, doth alſo by eleuation of the *Front*, adde *Maieſtie* to the whole *Aſpect*. And with ſuch a diſpoſition of the principall *Stayre-caſe*, which commonly doth deliuer vs, into the *Plaine* of the ſecond *Storie*, there may bee wonders done, with a little roome, whereof I could alleadge braue *Examples* abroad; and none more Artificiall, and Delicious, then a Houſe built by *Daniele Barbaro Patriarche* of *Aquileia* before mentioned, among the memorable *Commenters* vpon *Vitruuius*.

But

But the *Definition* (aboue determined) doth call vs to ſome conſideration of our owne Countrie, where though all the other pettie *Offices* (before rehearſed) may well enough bee ſo remote, yet by the naturall *Hoſpitalitie* of *England*, the *Buttrie* muſt be more viſible, and wee neede perchance for our *Raunges*, a more ſpacious and luminous *Kitchin*, then the foreſaid *Compartition* will beare; with a more competent-neereneſſe likewiſe to the *Dyning Roome*: Or elſe beſides other Inconueniences, perhapes ſome of the Diſhes may ſtraggle by the way; Heere let me note a common defect, that wee haue of a very vſefull *Roome*, called by the *Italians Il Tinello*; and familliar, nay almoſt eſſentiall, in all their great *Familes*. It is a Place properly appointed, to conſerue the meate that is taken from the Table, till the *Waiters* eate, which with vs by an olde faſhion, is more vnſeemely ſet by, in the meane while.

Now

Now touching the diſtribution of *Lodging* chambers; I muſt here take leaue to reprooue a faſhion, which I know not how hath preuailed through *Italie*, though without ancient examples, as farre as I can perceiue by *Vitruuius*. The thing I meane, is, that they ſo caſt their *partitions* as when all *Doors* are open, a man may ſee through the whole *Houſe*; which doth neceſſariely put an intollerable ſeruitude vpon all the *Chambers* ſaue the *Inmoſt*, where none can arriue, but through the reſt; or elſe the *Walles* muſt be extreame thicke for ſecret paſſages And yet this alſo will not ſerue the turne, without at leaſt *Three* doores to euery *Roome*: A thing moſt inſufferable, in cold & windie Regions, and euery where noe ſmall weakening to the whole *Worke*; Therefore with vs that want no cooling, I cannot commend the direct oppoſition of ſuch *Ouertures*, being indeede meerely grounded

grounded vpon the fond ambition of displaying to a *Stranger* all our *Furniture* at one *Sight*, which therefore is most maintained by them that meane to harbour but a few; whereby they make onely aduantage of the *vanitie*, and seldome proue the *Inconuenience*. There is likewise another defect (as absurdities are seldome solitarie) which will necessarily follow, vpon such a seruile disposing of inward Chambers. That they must bee forced to make as many common great *Roomes*, as there shalbe seuerall *Stories*; which (besides that they are vsually darke, a point hardly auoided, running as they doe, through the middle of the whole *House*) doe likewise deuoure so much Place, that thereby they want other *Galleries*, and Roomes of *Retreate*, which I haue often considered among them (I must confesse) with no small wonder; for I obserue no *Nation* in the World, by Nature more *priuate*

and *reſerued*, then the *Italian*, and on the other ſide, in no *Habitations* leſſe *priuacie*; ſo as there is a kinde of Conflict, betweene their *Dwelling* and their *Being*: It might heere perchance bee expected, that I ſhould at leaſt deſcribe (which others haue done in *draughts* and *deſignes*) diuers *Formes* of *Plants* and *Partitions*, and varieties of *Inuentions*; But ſpeculatiue *Writers* (as I am) are not bound, to compriſe all particular Caſes, within the Latitude of the *Subiect*, which they handle; Generall Lights, and *Directions*, and pointings at ſome faults, is ſufficient. The reſt muſt be committed to the ſagacitie of the *Architect*, who will bee often put to diuers ingenious ſhifts, when hee is to wreſtle with ſcarſitie of *Ground*. As ſometimes * to damme one Roome (though of ſpeciall vſe) for the benefit and beautie of all the reſt; Another while, to make thoſe faireſt, which are moſt in *Sight*, and to leaue the other (like

The *Italians* call it *vna ſtanza dannata*, as when a Buttrie is caſt vnder a a ſtayre-Caſe, or the like.

(like a cunning Painter) in ſhadow, *cum multis alijs*, which it were infinite to purſue. I will therefore cloſe this Part touching *Compartition*, as cheerefully as I can with a ſhort deſcription of a *Feaſting* or *entertayning Roome*, after the *Ægyptian* manner, who ſeeme (at leaſt till the time of *Vitruuius*) from the auncient *Hebrewes* and *Phenicians* (whence all knowledge did flow) to haue retayned, with other *Sciences*, in a high degree, alſo the *Principles*, and *practiſe* of this magnificent *Art*. For as farre as I may conieƈture by our Maſters Text, *lib.6.cap.5.* (where as in many other Places he hath tortured his *Interpreters*) there could no *Forme*, for ſuch a Royall vſe, bee comparably imagined, like that of the foreſaide *Nation*, which I ſhall aduenture to explaine.

Let vs conceiue a *Floore* or *Area* of goodly length, (For example, at leaſt of 120 foote) with the *breadth* ſome-

what more then the halfe of the *Longitude*, whereof the reaſon ſhalbe afterwards rendred. About the two longeſt *ſides*, and *Head* of the ſaid *Roome*, ſhall runne an Order of *Pillars*, which *Palladio* doth ſuppoſe *Corinthian* (as I ſee by his deſigne) ſupplying that point out of *Greece*, becauſe we know no *Order*, proper to *Ægypt*. The fourth *ſide* I wil leaue free for the *Entrance*: On the foreſaid *Pillars* was laid an *Architraue*, which *Vitruuius* mentioneth alone: *Palladio* addes thereunto (and with reaſon) both *Freeze* and *Cornice*, ouer which went vp a continued *Wall*, and therein, halfe or three quarter *Pillars*, anſwering directly, to the Order below, but a fourth Part leſſe; and betweene theſe halfe *Columnes* aboue, the whole Roome was windowed round about.

Now, from the loweſt *Pillars* there was layd ouer a *Contignation* or Floore, borne vpon the outward *Wall*, and the

Head

Head of the *Columnes* with *Tarrace* and *Pauement*, *Sub dio* (ſaith our Maſter) and ſo indeed hee might ſafely determine the matter in *Egypt*, where they feare no *Clowds*: Therefore *Palladio* (who leaueth this *Tarrace* vncouered in the middle, and *balliſed* about) did perchance conſtrue him rightly, though therein diſcording from others: Alwayes we muſt vnderſtand a ſufficient breadth of *Pauement*, left between the open part and the *Windowes*, for ſome delight of *Spectators*, that might looke downe into the *Roome*: The *Latitude* I haue ſuppoſed contrary to ſome former Poſitions, a little more then the halfe of the length; becauſe the Pillars ſtanding at a competent diſtance from the outmoſt *Wall*, will by interception of the *Sight*, ſomewhat in appearance diminiſh the breadth; In which caſes, (as I haue touched once or twice before) *Diſcretion* may bee more licentious then *Art*. This is the

deſcription of an *Egyptian* roome, for *Feaſtes* and other *Iollities*. About the *Walles* whereof wee muſt imagine entire *Statues*, placed below, and illuminated by the deſcending Light, from the *Tarrace*, as likewiſe from the *Windowes* betweene the halfe *Pillars* aboue: So as this *Roome* had abundant and aduantageous *Light*; and beſides other garniſhing, muſt needes receiue much *State* by the very heighth of the *Roofe*, that lay ouer two orders of *Columnes*: And ſo hauing runne through the foure parts of my firſt generall *Diuiſion*, namely, *Foundation*, *Walles*, *Appertions*, and *Compartition*; the *Houſe* may now haue leaue to put on his *Hatte*: hauing hitherto beene vncouered it ſelfe, and conſequently vnfit to couer others. Which point though it be the laſt of this *Art* in execution, yet it is alwayes in *Intention* the firſt, For who would build but for *Shelter*? Therefore obtayning both the *Place*, and the dig-

dignity of a *Finall cauſe*, it hath beene diligently handled by diuerſe, but by none more learnedly then *Bernardino Baldi* Abbot of *Guaſtalla* (before cited vpon other occaſion) who doth fundamentally, and *Mathematically* demonſtrate the firmeſt *Knittings* of the vpper *Timbers*, which make the *Roofe*. But it hath beene rather my *Scope*, in theſe *Elements* to fetch the ground of all, from *Nature* her ſelfe, which indeed is the ſimpleſt mother of *Art*. Therefore I will now onely deliuer a few of the propereſt, and (as I may ſay) of the naturaleſt conſiderations, that belong to this remayning *Piece*.

There are two extremities to be auoyded in the *Couer*, or *Roofe*: That it be not too *heauy*, nor too *light*. The firſt, will ſuffer a vulgar obiection of preſſing too much the vnder-worke. The other, contayneth a more ſecret inconuenience; for the *Couer* is not onely a bare defence, but likewiſe a kinde

kinde of *Band* or *Ligature*, to the whole *Fabrique*, and therefore would require ſome reaſonable weight. But of the two extreames, a Houſe *Top-heauie* is theworſt. Next there muſt bee a care of *Equality*, that the *Edifice* be not preſſed on the one ſide more then on the other; and here *Palladio* doth wiſely (like a cautelous *Artizan*) that the inward Walles might beare ſome good ſhare in the burthen, and the outward be the leſſe charged.

Thirdly, the *Italians* are very preciſe in giuing the *Couer* a gracefull *pendence* or *ſlopeneſſe*, diuiding the whole breadth into *Nine* parts; whereof two ſhal ſerue for the eleuation of the higheſt *Toppe* or *Ridge*, from the loweſt. But in this point the quality of the *Region* is conſiderable: For (as our *Vitruuius* inſinuateth) thoſe *Climes* that feare the falling and lying of much *Snow*, ought to prouide more inclining *Pentices*: and *Comelineſſe* muſt yeeld to *Neceſsity*. Theſe

Theſe are the vſefulleſt Cautions which I finde in *Authors*, touching the laſt *Head* of our Diuiſion, wherewith I will conclude the firſt *Part* of my preſent *Trauaile*. The ſecond remayneth, concerning *Ornaments* within, or without the *Fabrique*: A Piece not ſo dry as the meere Contemplation of proportions. And therefore I hope therein, ſomewhat to refreſh both the *Reader*, and my ſelfe.

OF THE ELEMENTS OF ARCHITECTVRE.

The II. part.

EVERY Mans proper *Manſion* Houſe and *Home*, being the *Theater* of his *Hoſpitality*, the *Seate* of *Selfe-fruition*, the *Comfortableſt part* of his owne *Life*, the *Nobleſt* of his Sonnes *Inheritance*, a kinde of priuate *Princedome*; Nay, to the *Poſſeſſors* thereof, an *Epitomie* of the whole *World*: may well deſerue by theſe *Attributes*, according to the degree of the *Maſter*, to be *decently* and *delightfully* adorned. For which ende, there are two *Arts* attending on *Architecture*, like

two

two of her principall *Gentlewomen*, to *dreſſe* and *trimme* their *Miſtreſſe*; PICTVRE & SCVLPTVRE: Between whom, before I proceed any further, I wil venture to determine an ancient quarrell about their *Precedency*, with this *Diſtinction*; that in the garniſhing of *Fabriques*, *Sculpture* no doubt muſt haue the *preheminence*, as being indeede of neerer affinity to *Architecture* it ſelfe, and conſequently the more naturall, and more ſutable *Ornament*. But on the other ſide, (to conſider theſe two *Arts* as I ſhall doe *Philoſophically*, and not *Mechanichally*) An excellent Piece of *Painting*, is to my iudgement the more admirable *Obiect*, becauſe it comes neere an *Artificiall Miracle*; to make diuerſe diſtinct *Eminences* appeare vpon a *Flat*, by force of *Shadowes*, and yet the *Shadowes* themſelues not to appeare: which I conceiue to be the vttermoſt value and vertue of a *Painter*, and to which very few haue arriued in all *Ages*.

In theſe two *Arts* (as they are appliable to the *Subiect* which I handle) it ſhall bee fit firſt to conſider how to *chooſe* them; and next, how to *diſpoſe* them. To guide vs in the *choyce*, wee haue a *Rule* ſomewhere (I well remember) in *Pliny*, and it is a prettie obſeruation: That they doe mutually helpe to cenſure one another. For *Picture* is beſt when it ſtandeth off, as if it were carued; and *Sculpture* is beſt when it appeareth ſo *tender*, as if it were *painted*, I meane, when there is ſuch a ſeeming ſoftneſſe in the *Limbes*, as if not a *Chiſſell* had hewed them out of *Stone*, or other *Materiall*, but a *Penſill* had drawne and ſtroaked them in *Oyle*, which the iudicious Poet tooke well to his Fancy.

Excudent alij ſpirantia mollius æra.

But this generalitie, is not ſufficient to make a good *chooſer*, without a more particular contraction of his Iudgement. Therefore when a Piece of

Art

Art, is set before vs, let the first Caution be, not to aske who made it, least the *Fame* of the *Author* doe Captiuate the *Fancie* of the *Buyer*. For, that excellent *Men* doe alwaies *excellently*, is a false Conclusion; whereupon I obserue among *Italian* Artizans three notable *Phrases*, which well decipher the degrees of their *Workes*.

They will tell you, that a thing was done (*con diligenza*, *Con studio*, and *Con Amore*; The first, is but a bare and *ordinary diligence*, The second, is a *learned diligence*; The third, is much more, euen a *louing diligence*; They meane not with loue to the *Bespeaker* of the *Worke*, but with a loue and delight in the *Worke* it selfe, vpon some speciall *Fancie* to this, or that *Storie*; And when all these concurre (perticularly the last) in an eminent *Author*, Then perchance *Titianus Fecit*, or *Titian inuen* will serue the *Turne*, without farther *Inquisition*; Otherwise Artizans haue not

onely their *growthes* and *Perfections*, but likewiſe their *Vaines* and *Tymes*.

The next Caution muſt be (to proceede *Logically*) that in Iudging of the *Worke* it ſelfe, wee bee not diſtracted with too many things at once; Therefore firſt (to beginne with *Picture*) we are to obſerue whether it bee well *drawne*, (or as more elegant *Artizans* tearme it) well *Deſign'd*; Then whether it be well *Coloured*, which bee the two generall *Heads*; And each of them hath two principall *Requiſites*; For in well *Deſigning*, there muſt bee *Truth* and *Grace*, In well *Colouring*, *Force*, and *Affection*; All other *Praiſes*, are but Conſequences of theſe.

Truth (as we Metaphorically take it in this *Art*) is a *Iuſt* and *Naturall Proportion*, in euery Part of the determined *Figure*. *Grace* is a certaine *free diſpoſition*, in the whole *Draught*, anſwerable to that vnaffected franknes of *Faſhion*, in a liuing *Bodie*, Man or Woman, which

which doth *animate Beautie* where it is, and *supplie* it, where it is not,

Force consisteth, in the *Roundings* & *Raisings* of the *Worke*, according as the *Limbes* doe more or lesse require it; So as the *Beholder*, shall spie no *sharpenesse* in the bordering *Lines*; As when Taylors cut out a Sute, which *Italians* doe aptly tearme according to that comparison, *Contorni taglienti*; Nor any *flatnesse* within the *Bodie* of the *Figure*, which how it is done, we must fetch from a higher *Discipline*; For the *Opticques* teach vs. That a *plaine*, will appeare *prominent*, and (as it were) *embossed*, if the Parts farthest from the *Axeltree* or middle *Beame* of the *Eye*, shalbe the most *shadowed*. Because in all *Darknesse*, there is a kinde of *Deepenesse*, But as in the *Arte* of *perswasion*, one of the most Fundamentall *Precepts* is; the *concealement* of *Arte*, Soe here likewise, the *Sight* must be sweetly deceaued, by an insensible passage, from *brighter* colours

lours, to *dimmer*, which *Italian Artizans* calle the *middle Tinctures*; That is, Not as the *whites*, and *yolkes* of *Egges* lie in the *Shell*, with visible distinction; But as when they are *beaten*, and *blended*, in a *Dish*: which is the neereſt compariſon, that I can ſuddenly conceiue.

Laſtly, *Affection* is the *Liuely Repreſentment*, of any *paſſion* whatſoeuer, as if the *Figures* ſtood not vpon a *Cloth* or *Boorde*, but as if they were *acting* vpon a *Stage*; And heere, I muſt remember, in truth with much marueile, a note, which I haue receiued, from excellent *Artizans*, that though *Gladneſſe*, and *Griefe*, be oppoſites in *Nature*; yet they are ſuch *Neighbours* and *Confiners* in *Arte*, that the leaſt touch of a *Penſill*, will tranſlate a *Crying*, into a *Laughing* Face; which *Inſtance*, beſides diuers other, doth often reduce vnto my memorie, that Ingenious *Speculation*, of the *Cardinall Cuſanus* extant in his *Workes*, touching the *Coincidence* of *extreames*,

extremes. And thus much of the foure *Requiſites*, and *Perfections* in *Picture.*

In *Sculpture* likewiſe, the *Two* firſt are abſolutely neceſſarie; The *third* impertinent; For *Solide* Figures neede no eleuation, by force of *Lights*, or *ſhadowes*; Therefore in the Roome of this, wee may put (as hath beene before touched) a kinde of *Tenderneſſe*, by the *Italians* tearmed *Morbidezza*, wherein the *Chiſſell*, I muſt confeſſe, hath more glory then the *Penſill*; that being ſo hard an *Inſtrument*, and working vpon ſo vnpliant ſtuffe, can yet leaue *Strokes* of ſo gentle *appearance.*

The *Fourth*, which is the expreſſing of *Affection* (as farre as it doth depend vpon the *Actiuity*, and *Geſture* of the *Figure*) is as proper to the *Caruer*, as to the *Painter*; though *Colours*, no doubt, haue therein the greateſt *Power*; whereupon, perchance, did firſt grow with vs the *Faſhion* of *colouring*, euen *Regall Statues*, which I muſt take leaue to call

an *Engliſh Barbariſme.*

Now in theſe fower *Requiſites* already rehearſed, it is ſtrange to note, that no *Artizan*, hauing euer beene blamed for exceſſe in any of the three laſt; onely *Truth* (which ſhould ſeeme the moſt *Innocent*) hath ſuffered ſome Obiection, and all *Ages*, haue yeelded ſome one or two *Artificers*, ſo *prodigiouſly* exquiſite, that they haue beene reputed too *Naturall*, in their *Draughts*; which will well appeare, by a famous Paſſage in *Quintilian*, touching the *Characters* of the ancient Artizans, falling now ſo aptly into my memory, that I muſt needes tranſlate it, as in truth it may well deſerue.

The Place which I intend, is extant in the laſt *Chapter* ſaue one of his whole *Worke*, beginning thus in *Latine.*

Primi, quorum quidem opera non vetuſtatis modo gratia viſenda ſunt clari Pictores fuiſſe dicuntur, Polygnotus atque Aglaophon &c.

The

The whole *Passage*, in *English* standeth thus:

THe first *Painters* of name, whose *Workes* bee considerable for any thing more then onely *Antiquitie*, are said to haue beene *Polygnotus*, and *Aglaophon*; whose bare *Colourings* (hee meanes I thinke in *white* and *blacke*) hath euen yet so many followers, that those rude and first *Elements*, as it were of that, which within a while, became an *Arte*, are preferred, before the greatest *Painters* that haue beene extant after them, out of a certaine *Competition* (as I conceiue it) in point of *Iudgement*. After these, *Zeuxes* and *Parasius* not farre distant in *age*, both about the time of the *Peloponesian Warre*, (for in *Xenophon* wee haue a Dialogue betweene *Parasius* and *Socrates*) did adde much to this *Arte*. Of which the *first* is said, to haue inuented the due disposition of *Lights* and *Shadowes*;

The *ſecond*, to haue more ſubtilly examined, the *truth* of *Lines* in the *Draught*; for *Zeuxes* did make *Limbes*, bigger then the *life*; deeming his *Figures*, thereby the more *ſtately* and *Maieſticall*; & therein (as ſome thinke) imitating *Homer*, whom the *ſtouteſt* forme doth pleaſe, euen in *Women*. On the other ſide, *Paraſius* did exactly limit al the *Proportions* ſo, as they call him the *Law giuer*, becauſe in the *Images* of the *Gods* and of *Heroicall Perſonages*, others haue followed his *Paternes* like a *Decree*; But *Picture* did moſt flouriſh, about the daies of *Phillip* and euen to the Succeſſours of *Alexander*; yet by ſundry *habilities*; for *Protogenes*, did excell in *Diligence*; *Pamphilus* and *Melanthius* in due *Proportion*, *Antiphilus* in a *Franke Facilitie*; *Theon* of *Samos*, in *ſtrength* of *Fantaſie* and conceiuing of *Paſsions*; *Apelles*, in *Inuention*, and *Grace*, whereof hee doth himſelfe moſt vaunte; *Euphranor*, deſerues admiration,

tion, that being in other excellent *ſtudies*, a principall Man, he was likewiſe a wondrous Artizan, both in *Painting* and *Sculpture*. The like difference we may obſerue among the *Statuaries*; for the workes of *Calon* and *Fgeſias* were ſomewhat *ſtiffe*, like the *Tuſcan* manner; Thoſe of *Calamis* not done with ſo *cold* ſtroakes; And *Myron* more *tender* then the former; a diligent *Decency* in *Polycletus* aboue others, to whom though the higheſt prayſe bee attributed by the moſt, yet leſt he ſhould goe free from exception, ſome thinke hee wanted *ſolemneſſe*; for as he may perchance be ſayd to haue added a *comely dimenſion* to humane ſhape, ſomewhat aboue the *truth*; ſo on the other ſide, hee ſeemed not to haue fully expreſſed the *Maieſty* of the *Gods*: Moreouer, hee is ſayd not to haue medled willingly with the *grauer age*, as not aduenturing beyond *ſmooth cheekes*: But theſe vertues that were wanting in *Po-*

lycletas, were ſupplied by *Phidias* and *Alcmenes*, yet *Phidias* was a better Artizan in the repreſenting of *Gods*, then of *Men*; and in his workes of *Iuorie*, beyond all emulation, euen though hee had left nothing behinde him, but his *Minerua* at *Athens*, or the *Olympian Iupiter* in *Elis*, whoſe *Beautie* ſeemes to haue added ſomewhat, euen to the receiued *Religion*; the *Maieſtie* of the *Worke*, as it were equalling the *Deity*. To *Truth*, they affirme *Lyſippus* and *Praxiteles*, to haue made the neereſt approach: for *Demetrius* is therein reprehended, as rather exceeding then deficient; hauing beene a greater aymer at *Likenes*, then at *Louelines*.

This is that witty Cenſure of the ancient Artizans, which *Quintilian* hath left vs, where the laſt *Character* of *Demetrius* doth require a little *Philoſophicall* examination; How an *Artificer*, whoſe end is the *imitation* of *Nature*, can bee too *naturall*; which likewiſe

wiſe in our dayes was either the fault, or (to ſpeake more gently) the too much perfection of *Albert Durer*, and perhaps alſo of *Michael Angelo da Buonaroti*, betweene whom I haue heard noted by an ingenious *Artizan*, a prety nice difference, that the *German* did too much expreſſe *that which was*; and the *Italian*, *that which ſhould be*: Which ſeuere obſeruation of *Nature*, by the one in her *commoneſt*, and by the other in her *abſoluteſt* Formes, muſt needs produce in both a kinde of *Rigidity*, and conſequently more *naturalneſſe* then *gracefulneſſe*: This is the cleereſt reaſon, why ſome exact *Symmetriſts* haue been blamed, for being too true, as neere as I can deliuer my conceit. And ſo much touching the choyce of *Picture* and *Sculpture*: The next is, the *application* of both, to the *beautifying* of *Fabriques*.

Firſt therefore touching *Picture*, there doth occurre a very pertinent doubt,

doubt, which hath beene paſſed ouer too ſlightly, not onely by ſome *Men*, but by ſome *Nations*; namely, whether this *Ornament* can wel become the *Outſide* of *houſes*, wherin the *Germanes* haue made ſo little ſcruple, that their beſt *Townes* are the moſt painted, as *Auguſta* and *Norembergh*. To determine this queſtion in a word: It is true, that a *Story* well ſet out with a good *Hand*, will euery where take a *Iudicious* eye: But yet withal it is as true, that various colours on the *Out-walles* of *Buildings*, haue alwayes in them more *Delight* then *Dignity*: Therfore I would there admit no *Paintings* but in *Blacke* and *White*, nor euen in that kinde any *Figures* (if the roome be capable) vnder *Nine* or *Ten* foot high, which will require no ordinary *Artizan*; becauſe the faults are more *viſible* then in ſmall *Deſignes*. In vnfigured *paintings* the nobleſt is, the imitation of *Marbles*, & of *Architecture* it ſelfe, as *Arches*, *Treezes*, *Columnes*,

Columnes, and the like.

Now for the *Inside*, heere growes another doubt, whether *Groteſca* (as the *Italians*) or *Antique* worke (as wee call it) ſhould be receiued, againſt the expreſſe authoritie of *Vitruuius* himſelfe, *lib.7. cap.5.* where *Pictura* (ſaith hee) *Fit eius, quod eſt, ſeu poteſt eſſe*, excluding by this ſeuere definition, all *Figures* compoſed of different *Natures* or *Sexes*; ſo as a *Syrene* or a *Centaure* had beene intolerable in his eye: But in this wee muſt take leaue to depart from our *Maſter*, & the rather becauſe he ſpake out of his owne *profeſsion*, allowing *Painters* (who haue euer bin as little limited as *Poets*) a leſſe ſcope in their imaginations, euenthen the graueſt *Philoſophers*, who ſometimes doe ſerue themſelues of *Inſtances*, that haue no *Exiſtence* in *Nature*; as wee ſee in *Platoes Amphisbœna*, & *Ariſtotles Hirco-Ceruus*. And (to ſettle this point) what was indeede more common and fami-

liar among the *Romanes* themſelues, then the *Picture* and *Statue* of *Terminus*, euen one of their *Deities*? which yet if we well conſider, is but a piece of *Groteſca*; I am for theſe reaſons vnwilling to impouerish that *Art*, though I could wiſh ſuch *medlie* and *motlie* Deſignes, confined onely to the *Ornament* of *Freezes*, and Borders, their propereſt place. As for other *Storied* Workes vpon *Walles*, I doubt our *Clime* bee too *yeelding* and *moiſt*, for ſuch *Garniſhment*; therefore leauing it to the *Dwellers* diſcretion, according to the qualitie of his *Seat*; I will onely adde a caution or two, about the diſpoſing of *Pictures* within.

Firſt, that no *Roome* bee furniſhed with too many, which in truth were a *Surfet* of *Ornament*, vnleſſe they bee *Galleries*, or ſome peculiar *Repoſitory* for *Rarities* of *Art*.

Next, that the beſt *Pieces* be placed not where there is the *leaſt*, but where there

there are the *feweſt lights*; therefore not onely *Roomes* windowed on both ends, which we call through-lighted; but with two or moe *Windowes* on the ſame ſide, are enemies to this *Art*; and ſure it is, that no *Painting* can be ſeene in full *Perfection* but (as all *Nature* is illuminated) by a *ſingle* Light.

Thirdly, that in the *placing* there be ſome care alſo taken, how the *Painter* did ſtand in the *Working*, which an intelligent *Eye*, will eaſily diſcouer, and that *Poſture* is the moſt naturall; ſo as *Italian* pieces will appeare beſt in a *Roome* where the *Windowes* are high; becauſe they are commonly made to a deſcending *Light*, which of all other doth ſet off mens *Faces* in their trueſt Spirit.

Laſtly, that they bee as *properly* beſtowed for their *quality*, as *fitly* for their *grace*: that is, *chearefull* Paintings in *Feaſting* and *Banquetting* Roomes; *Grauer Stories* in *Galleries*, *Land-ſchips*, and

Boſcage, and ſuch *Wilde* workes in open *Tarraces*, or in *Summer houſes* (as we call them) and the like.

And thus much of *Picture*, which let mee cloſe with this Note; that though my former Diſcourſe may ſerue perchance for ſome reaſonable *leading* in the choyce of ſuch delights; yet let no man hope by ſuch a *ſpeculatiue* erudition, to diſcerne the *Maſterly* and *Myſterious* touches of *Art*, but an Artizan himſelfe; to whom therefore we muſt leaue the *prerogatiue*, to cenſure the manner and handling, as hee himſelfe muſt likewiſe leaue ſome points, perchance of no leſſe value to others; as for example, whether the *Story* be rightly *repreſented*, the *Figures* in true *action*, the *Perſons ſuted* to their ſeuerall qualities, the *affections proper* and *ſtrong*, and ſuch like obſeruations.

Now for *Sculpture*, I muſt likewiſe begin with a *Controuerſie*, as before (falling into this Place) or let mee rather

ther call it a very meere *Fancie*, ſtrangely taken by *Palladio*, who hauing noted in an old *Arch* or two at *Verona*, ſome part of the *Materials* already cut in fine *Formes*, and ſome *vnpoliſhed*, doth conclude (according to his *Logicke*) vpon this particular, that the *Auncients* did leaue the outward *Face*, of their *Marbles* or *Free-ſtone*, without any *Sculpture*, till they were laid, and *Cimented*, in the bodie of the *Building*; For which likewiſe hee findeth a reaſon (as many doe now and then very wittily, euen before the thing it ſelfe be true) that the Materialls being left *rough* were more managable in the *Maſons* hand, then if they had beene *ſmooth*; And that ſo the *ſides* might bee laide togethe the more exactly; Which Conceit, once taken hee ſeemes to haue farther imprinted, by marking in certaine Storied *Sculptures*, of oulde time, how preciſely the parts and *Lines* of the *Figures* that paſſe from one Stone

to another, doe meete; which hee thinkes could hardly fall out ſo right, (forgetting while he ſpeakes of *ancient* things, the auncient *Diligence*) vnleſſe they had beene cut, after the ioyning of the *Materials*, But all theſe *Inducements*, cannot counteruaile the ſole *Inconuenience* of *ſhaking*, and *Diſioynting* the *Commiſſures* with ſo many Strokes of the *Chiſſell*, beſides an *Incommodious* Working on *Scaffolds*; eſpecially hauing no teſtimonie, to confirme it, that I haue yet ſeene among the records of *Art*; Nay, it is indeede rather true, that they did *ſquare*, and *Carue*, and *Poliſh*, their *Stone* and *Marble* Workes, euen in the very *Caue* of the *Quarrie*, before it was hardened by open Aire; But (to leaue diſputation) I will ſet downe a few *Poſitiue* notes, for the placing of *Sculpture*; becauſe the chuſing hath beene handled before.

That firſt of all, it bee not too *generall* and *abundant*, which would make

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a *Houſe*, looke like a *Cabbinet*, & in this point, *morall Philoſophie* which tempereth *Fancies*, is the *Superintendent* of *Art*.

That eſpecially, There bee a due moderation of this *Ornament* in the firſt approach; where our Authors doe more commend (I meane about the Principall *Entrance*) a *Dorique*, then a *Corinthian* garniſhment; So as if the great *Doore*, be *Arched*, with ſome braue *Head*, cut in fine *Stone* or *Marble* for the *Key* of the *Arch*, and two *Incumbent* Figures gracefully leaning vpon it, towards one another, as if they meant to conferre; I ſhould thinke this a ſufficient entertainement, for the firſt *Reception*, of any *Iudicious* Sight, which I could wiſh ſeconded, with two great ſtanding *Statues* on each ſide of a paued way that ſhall leade vp into the *Fabrique*, So as the *Beholder* at the firſt entrance, may paſſe his *Eye* betweene them.

That the *Nices*, if they containe *Figures*

gures of *white* Stone or *Marble*, bee not coloured in their *Concauitie* too *blacke*, For though *Contraria iuxta ſe poſita magis illuceſcunt* (by an olde Rule) yet it hath beene ſubtilly, and indeede truely noted that our *Sight*, is not well contented, with thoſe ſudden departments, from one extreame, to another; Therefore let them haue, rather a *Duskiſh* Tincture, then an abſolute *blacke*.

That *fine* and delicate *Sculptures*, be helped with *Neerenes*, and *Groſſe* with *diſtance*; which was well ſeene in the olde controuerſie, betweene *Phidias* and *Alcmenes* about the *Statue* of *Venus*: wherein the Firſt did ſhew diſcretion, and ſaue labour, becauſe the *Worke* was to bee viewed at good *Height*, which did drowne the ſweete and diligent ſtrokes of his *Aduerſarie*: A famous emulation of two principall *Artizans*, celebrated euen by the *Greeke Poets*.

That in the placing of ſtanding *Figures*

gures aloft, wee muſt ſet them in a *Poſture* ſomewhat bowing forward; bebecauſe(ſaith our Maſter, *lib.* 3. *cap.* 3. out of a better *Art* then his owne) the *viſuall beame* of our eye, extended to the *Head* of the ſaid *Figures*, being longer then to the *Foote*, muſt neceſſarily make that *part* appeare *farther*; ſo as to reduce it to an erect or vpright *poſition*, there muſt be allowed a due aduantage of *ſtooping* towards vs; which *Albert Durer* hath exactly taught, in his fore mentioned *Geometry*. Our *Vitruuius* calleth this affection in the *Eye*, a *reſupination* of the *Figure*: For which word (being in truth his owne, for ought I know) wee are almoſt as much beholding to him, as for the obſeruation it ſelfe: And let thus much ſummarily ſuffice, touching the choice and vſe of theſe adorning *Arts*. For to ſpeake of garniſhing the *Fabrique* with a *Row* of erected *Statues*, about the *Cornice* of euery *Contignation*

or Story, were diſcourſe more proper for *Athens* or *Rome*, in the time of their true greatneſſe, when (as *Plinie* recordeth of his own *Age*) there were neere as many carued *Images*, as liuing *Men*; like a noble contention, euen in point of *Fertility*, betweene *Art* and *Nature*; which paſſage doth not onely argue an infinite abundance, both of *Artizans* and *Materials*; but likewiſe of *Magnificent* and *Majeſticall* deſires, in euery common perſon of thoſe times; more or leſſe according to their *Fortunes*. And true it is indeed that the Marble *Monuments* & *Memories* of well deſeruing Men, wherewith the very high wayes were *ſtrewed* on each ſide was not a bare and tranſitory entertainement of the *Eye*, or onely a gentle deception of *Time*, to the *Trauailer*: But had alſo a ſecret and ſtrong *Influence*, euen into the aduancement of the *Monarchie*, by continuall repreſentation of vertuous examples; ſo as in

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that point ART became a piece of *State*.

Now as I haue before ſubordinated *Picture*, and *Sculpture* to *Architecture*, as their Miſtreſſe; ſo there are certaine inferiour ARTS likewiſe ſubordinate to them: As vnder Picture, *Moſaique*; vnder Sculpture, *Plaſtique*; which two, I onely nominate, as the fitteſt to garniſh *Fabriques*.

Moſaique is a kinde of Painting in ſmall *Pebbles*, *Cockles* and *Shells* of ſundry colours; and of late dayes likewiſe with pieces of *Glaſſe*, figured at pleaſure; an *Ornament* in trueth, of much beauty, and long life, but of moſt vſe in *pauements* and *Floorings*.

Plaſtique is not onely vnder *Sculpture*, but in deed very *Sculpture* it ſelfe: but with this difference; that the *Plaſterer* doth make his Figures by *Addition*, and the *Caruer* by *Subſtraction*, whereupon *Michael Angelo* was wont to ſay ſomewhat pleaſantly: That *Sculp-*

ture was nothing but *A purgation of ſuperfluities.* For take away from a piece of wood, or ſtone, all that is *ſuperfluous*, and the remainder is the intended *Figure.* Of this *Plaſtique Art*, the chiefe vſe with vs is in the gracefull *fretting* of roofes: but the *Italians* applie it, to the *manteling* of *Chimneys*, with great Figures. A cheape piece of *Magnificence*, and as durable almoſt within doores, as harder *Forms* in the weather. And here though it bee a little excurſion, I cannot paſſe vnremembred a gaine, their manner of diſguiſing the ſhaftes of *Chimneys* in various faſhions, whereof the nobleſt is the *Pyramidall*: beeing in trueth a piece of polite and ciuill diſcretion, to conuert euen the *conduits* of ſoote and ſmoake, into *Ornaments*; whereof I haue hitherto ſpoken as farre as may concerne the Bodie of the Building.

Now there are *Ornaments* alſo without, as *Gardens*, *Fountaines*, *Groues*, *Conſerua-*

ſeruatories of rare *Beaſts*, *Birds*, and *Fiſhes*. Of which ignobler kind of Creatures, *Wee ought not* (ſaith our greateſt *Maſter among the ſonnes of Nature) *childiſhly to deſpiſe the Contemplation; for in all things that are naturall, there is euer ſomething, that is admirable.* Of theſe externall delights, a word or two.

* *Ariſt. lib. 1 cap. 5. de part. Anim.* δεῖ μὰ δυσχερῶς τοῦ παιδικῶς πλὴν οὕτω περὶ ἅπασαν τὴν φύσιν ἐνορᾶν ἐν ᾗ θαυμαστόν τι καὶ καλόν. Ἐν πᾶσι γὰρ τοῖς φυσικοῖς ἐνεστὶ θαυμαστόν.

First, I muſt note a certaine contrarietie betweene *building* and *gardening*: For as Fabriques ſhould bee *regular*, ſo Gardens ſhould bee *irregular*, or at leaſt caſt into a very wilde *Regularitie*. To exemplifie my conceit; I haue ſeene a *Garden* (for the maner perchance incomparable) into which the firſt Acceſſe was a high walke like a *Tarrace*, from whence might bee taken a generall view of the whole *Plott* below; but rather in a delightfull confuſion, then with any plaine diſtinction of the pieces. From this the *Beholder* deſcending many ſteps, was afterwards conueyed againe, by ſeuerall *mountings* and *valings*,

lings, to various entertainements of his *ſent*, and *ſight*: which I ſhall not neede to deſcribe (for that were poeticall) let me onely note this, that euery one of theſe diuerſities, was as if hee had beene *Magically* tranſported into a new Garden.

But though other *Countreys* haue more benefite of Sunne then wee, and thereby more properly tyed to contemplate this delight; yet haue I ſeene in our *owne*, a delicate and diligent *curioſitie*, ſurely without *parallel* among foreigne *Nations*: Namely, in the Garden of Sir *Henry Fanſhaw*, at his ſeat in *Ware-Parke*, where I wel remember, hee did ſo preciſely examine the *tinctures*, and *ſeaſons* of his *flowres*, that in their *ſetting*, the *inwardeſt* of thoſe which were to come vp at the ſame time, ſhould be alwayes a little *darker* then the *outmoſt*, and ſo ſerue them for a kinde of gentle *ſhadow*, like a piece not of *Nature*, but of *Arte*: which mention

tion (incident to this place) I haue willingly made of his *Name*, for the deare *friendſhip* that was long betweene vs: though I muſt confeſſe, with much wrong to his other *vertues*; which deſerue a more ſolide *memoriall*, then among theſe vacant obſeruations. So much of *Gardens*.

Fountaines are *figured*, or only plaine *Water'd-workes*: Of either of which, I will deſcribe a matchleſſe patterne.

The firſt, done by the famous hand of *Michael Angelo da Buonaroti*, in the figure of a ſturdie *woman*, *waſhing* and *winding* of linnen clothes; in which Acte, ſhee *wrings* out the water that made the *Fountaine*; which was a gracefull and naturall conceit in the Artificer, implying this rule; That all *deſignes* of this kind, ſhould be *proper*.

The other doth merite ſome larger expreſſiō; There went a long, ſtraight, moſſie walke of competent breadth, greene, and ſoft vnder foot, liſted on both

both ſides with an *Aquæduct* of white ſtone, breaſt-high, which had a hollow *channell* on the top, where ranne a prety trickling ſtreame; on the *edge* whereof, were couched very thicke all along, certaine ſmall *pipes* of lead, in little holes; ſo neatly, that they could not be well perceiued, till by the turning of a cocke, they did ſprout ouer interchangeably from ſide to ſide, aboue mans height, in forme of *Arches*, without any interſection or meeting aloft, becauſe the pipes were not exactly oppoſite, ſo as the *Beholder*, beſides that, which was fluent in the *Aquæducts* on both hands in his view, did walke as it were, vnder a continuall *bowre* or *Hemiſphere* of water, without any drop falling on him. An *inuention* for refreſhment, ſurely farre excelling all the *Alexandrian* delicacies, and *Pneumatiques* of *Hero*.

Groues, and artificiall deuices vnder ground, are of great expence, and little dignitie;

dignitie; which for my part I could wiſh conuerted here into thoſe *Crypteria*, whereof mention is made among the curious prouiſions of *Ticho Braghe* the *Daniſh Ptolemie*, as I may well call him: which were deepe *concaues* in gardens, where the *ſtarres* might be obſerued euen at *noone*. For (by the way) to thinke that the brightneſſe of the Sunnes body aboue, doth drowne our diſcerning of the leſſer lights, is a popular errour; the ſole impediment being that luſtre, which by *reflection*, doth ſpread about vs, from the face of the Earth; ſo as the *caues* before touched, may well conduce, not to a delicious, but to a learned pleaſure.

In *Auiaries* of wire, to keepe Birdes of all ſorts, the *Italians* (though no waſtfull Nation) doe in ſome places beſtow vaſt expence; including great ſcope of *ground*, varietie of *buſhes*, *trees* of good height, running *waters*, and ſometimes a *Stoue* annexed, to con-

temper the *Aire* in Winter. So as thoſe *Chantereſſes*, vnleſſe they be ſuch as perhaps delight as much in their wing, as in their voice, may liue long, among ſo good prouiſions and roome, before they know that they are *priſoners*; reducing often to my memory, that conceit of the *Romane Stoicke*, who in compariſon of his owne free *contemplations*, did thinke diuers great and ſplendent fortunes of his time, little more then *commodious captiuities*.

Concerning *Ponds* of pleaſure neere the habitation; I will referre my ſelfe to a graue *Author* of our owne (though more illuſtrious by his other* worke) namely *Sariſburienſis de Piſcinâ*.

* *De Nugis Curial. &c.*

And here I will end the ſecond part touching *Ornaments*, both *within*, and *without* the *Fabrique*.

Now as almoſt all thoſe, which haue deliuered the *Elements* of *Logicke*, doe vſually conclude, with a Chapter touching *Methode*; ſo I am heere ſeized with

with a kind of critical ſpirit, & deſirous to ſhut vp theſe building *Elements*, with ſome *Methodical* directiō how to *cenſure* Fabriques alreadie raiſed: for indeed without ſome way to contract our *Iudgement*, which among ſo many particulars would bee loſt by diffuſion; I ſhould thinke it almoſt harder to be a good *Cenſurer*, then a good *Architect*: Becauſe the *working* part may be helped with *Deliberation*, but the *Iudging* muſt flow from an *extemporall habite*. Therfore, (not to leaue this laſt *Piece* without ſome *Light*) I could wiſh him that commeth to examine any noble *Work*, firſt of all to examine himſelfe, whether perchance the *ſight* of many braue things before (which remaine like impreſſed formes) haue not made him apt to thinke nothing *good*, but that which is the *beſt*; for this *humour* were too ſowre. Next, before hee come to ſettle any imaginable opinion, let him by all meanes ſeeke to informe himſelfe

ſelfe preciſely, of the *Age* of the *Worke* vpon which hee muſt paſſe his *Doome*. And if hee ſhall finde the apparent *decayes* to exceed the proportion of *Time*; then let him conclude without farther inquiſition, as an abſolute Decree, that either the *Materials* were too *ſlight*, or the *Seate* is nought. Now, after theſe premiſſes, if the *Houſe* be found to beare his *yeares* well, (which is alwayes a token of ſound *conſtitution*) Then let him ſuddenly runne backewardes, (for the *Methode* of *cenſuring* is contrary to the *Methode* of *compoſing*) from the *Ornaments* (which firſt allure the *Eye*) to the more eſſentiall *Members*, till at laſt hee be able to forme this *Concluſion*, that the *Worke* is *Commodious*, *Firme*, and *Delightfull*; which (as I ſaid in the beginning) are the three capitall *Conditions* required in good *Buildings*, by all *Authors* both Ancient and Moderne. And this is, as I may tearme it the moſt *Scientificall* way of *Cenſuring*.

There

There are two other which I muſt not forget. The firſt in *Georgio Vaſſari*, before his laborious *Worke* of the liues of *Architects*, which is to paſſe a running examination ouer the whole *Edifice*, according to the properties of a *well ſhapen Man*. As whether the *Wals* ſtand vpright vpon cleane footing and *Foundation*; whether the *Fabrique* bee of a beautifull *Stature*, whether for the *breadth* it appeare well *burniſhed*, whether the principall *Entrance* be on the middle Line of the *Front* or Face, like our *Mouthes*, whether the *Windowes*, as our *Eyes*, be ſet in equall number and diſtance on both ſides, whether the *Offices* like the *Veines* in our Bodies, be vſefully diſtributed, and ſo forth. For this *Allegoricall* review may be driuen as farre as any *Wit* will, that is at leaſure.

The ſecond way, is in *Vitruuius* himſelfe, *lib.* 1. *cap* 2. where hee ſummarily determineth ſix *Conſiderations*, which accompliſh this whole *Art*.

Ordinatio.
Diſpoſitio.
Eurythmia.
Symmetria.
Decor, and
Diſtributio.

Whereof (in my conceit) wee may ſpare him the firſt two; for as farre as I can perceiue, either by his *Interpreters*, or by his own *Text* (which in that very place, where perchance he ſhould be *cleareſt*, is of all other the *Cloudieſt*) hee meaneth nothing by *Ordination*, but a well ſetling of the *Modell* or *Scale* of the whole *Worke*. Nor by *Diſpoſition*, more then a neate and full expreſſion of the firſt *Idea* or *Deſignement* thereof; which perchance doe more belong to the *Artificer*, then to the *Cenſurer*. The other foure are enough to condemne, or abſolue any *Fabrique* whatſoeuer. Whereof *Eurythmia* is that agreeable *Harmony*, betweene the breadth, length, and height of all the Roomes

Roomes of the *Fabrique*, which ſuddenly where it is taketh euery *Beholder*, by the ſecret power of *Proportion*: wherein let mee onely note this, That though the leaſt error or offence that can be committed againſt *ſight*, is exceſſe of height; yet that fault is no where of ſmall importance, becauſe it is the greateſt offence againſt the Purſe.

Symmetria is the *conueniencie* that runneth betweene the *Parts* and the *Whole*, whereof I haue formerly ſpoken.

Decor is the keeping of a due *Reſpect* betweene the *Inhabitant*, and the *Habitation*. Whence *Palladius* did conclude, that the principall *Entrance* was neuer to be regulated by any certaine *Dimenſions*; but by the dignity of the *Maſter*; yet to exceede rather, in the *more*, then in the *leſſe*, is a marke of *Generoſity*, and may alwayes be excuſed with ſome noble *Emblene*, or *Inſcription*,

on, as that of the *Conte di Beuilacqua*, ouer his large *Gate* at *Verona*, where perchance had beene committed a little *Disproportion*.

Patet Ianua: Cor magis.

And heere likewise I must remember our euer memorable Sir *Philip Sidney*, (whose *Wit* was in truth the very rule of *Congruity*) who well knowing that *Basilius* (as hee had painted the *State* of his *Minde*) did rather want some extraordinary *Formes* to entertaine his *Fancie*, then *roome* for *Courtiers*; was contented to place him in a *Star-like Lodge*; which otherwise in seuere *Iudgement* of *Art* had beene an incommodious *Figure*.

Distributio is that vsefull *Casting* of all Roomes for *Office*, *Entertainement*, or *Pleasure*, which I haue handled before at more length, then any other Piece.

These are the Foure *Heads* which euery man should runne ouer, before hee

hee paſſe any determinate *Cenſure*, vpon the Works that he ſhal view, wherewith I will cloſe this laſt part, touching *Ornaments*. Againſt which (mee thinkes) I heare an *Obiection*, euen from ſome well-meaning man; That theſe delightfull *Craftes*, may be diuers wayes ill applied in a *Land*. I muſt confeſſe indeede, there may bee a *Laſciuious*, and there may be likewiſe a *ſuperſtitious* vſe, both of *Picture* and of *Sculpture*: To which poſſibility of miſapplication, not onely theſe *Semi-liberall Arts* are ſubiect; but euen the higheſt perfections, and *endowments* of *Nature*. As *Beautie* in a light woman, *Eloquence* in a mutinous Man, *Reſolution* in an Aſſaſinate, Prudent *obſeruation* of houres & humours, in a corrupt Courtier, *Sharpeneſſe* of wit and argument in a ſeducing Scholler; and the like. Nay, finally let mee aske, what ART can be more pernicious, then euen RELIGION it ſelfe, if it ſelfe be con-

uerted into an Inſtrument of ART: Therefore, *Ab abuti ad non vti, negatur conſequentia.*

Thus hauing ſtitched in ſome ſort together, theſe *Animaduerſions*, touching *Architecture*, and the *Ornaments* thereof; I now feele that *contemplatiue* ſpirits are as reſtleſſe as *actiue*; for doubting with my ſelfe, (as all weakeneſſe is iealous) that I may be thought to haue ſpent my poore obſeruation abroad, about nothing but Stone and Timber, and ſuch Rubbage; I am thereby led into an immodeſtie of proclaiming another Worke, which I haue long deuoted to the ſeruice of my *Countrey*: Namely, *A Philoſophicall Suruey of Education*, which is indeed, a ſecond *Building*, or repairing of Nature, and, as I may tearme it, a kinde of *Morall Architecture*; whereof ſuch Notes as I haue taken in my foreigne tranſ-

tranſcurſions or abodes, I hope to vtter without publike offence, though ſtill with the freedome of a plaine *Kentiſh* man. In the meane while I haue let theſe other *Gleanings* flie abroad, like the Bird out of the *Arke*, to diſcouer what footing may bee, for that which ſhall follow.

FINIS.

Errata.

Pag.6.lin.8. for as, *reade* is. *Pag.48. lin.2. for* cuncatim, *reade* cuneatim. *Pag.77. lin.6. for* (wo, *read* (who. *Pag.80. lin.9. for* wiſely, *reade* wiſh. *Pag.88. lin.19.* omitted in the Margin the verſes following, touching the coincidence of extreame affections; repreſented by *Homer* in the perſon of *Hectors* wife; as Painters and Poets haue alwaies had a kind of congeniality.

ΙΛΙΑΔ. ζ.

Ὡς ἄρ᾽ ὀπὼν ἀλόχοιο φίλης ἀὸ χέρσιν ἔθηκε,
Παῖδ᾽ ἰὸν, ἅδ᾽ ἄμα μὴ κεκάδεῖ ἀλκὰτ κόλπῳ
Ακκρύσιν γελάσασα. --- That is,
Shee tooke her ſonne into her armes, weepingly laughing.

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